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Item No. – 4.82

University of Mumbai
मुंबई विद्यापीठ

Restructured & Revised Syllabus under Credit based Semester and Grading System

For

Master of Management Studies (MMS)

2 Years full-time Masters Degree Course in Management

(Effective from the academic year 2014 – 2015)

MMS – SYLLABUS
INFORMATION TECHNOLOGY SPECIALIZATION

MMS – Semester – I (Core Subjects All Specialisations)

Sr. No.	Subject	Teaching Hours		Assessment Pattern				
		No. of Sessions of 90 minutes	No. of Sessions of 90 minutes per week	Continuous Assessment	Semester End Examination	Total Marks	Duration of Theory Paper	No of Credits
1	Perspective Management	30	2	40 IA	60 IA	100	3	2.5
2	Business Communication and Management Information Systems	30	2	40 IA	60 IA	100	3	2.5
3	Organisational Behaviour	30	2	40 IA	60 IA	100	3	2.5
4	Financial Accounting	30	2	40 IA	60 IA	100	3	2.5
5	Operations Management	30	2	40 IA	60 IA	100	3	2.5
6	Marketing Management	30	2	40 IA	60 IA	100	3	2.5
7	Managerial Economics	30	2	40 IA	60 IA	100	3	2.5
8	Business Statistics	30	2	40 IA	60 IA	100	3	2.5
			Total No of Credits					**20**

UA: - University Assessment; IA: - Internal Assessment

MMS –Semester II – (6 Core Subjects and 2 Specialisation Electives)

Sr. No.	Subject	Teaching Hours		Assessment Pattern				
		No. of Sessions of 90 minutes	No. of Sessions of 90 minutes per week	Continuous Assessment	Semester End Examination	Total Marks	Duration of Theory Paper	No of Credits
1	Cost & Management Accounting	30	2	40 IA	60 IA	100	3	2.5
2	Financial Management	30	2	40 IA	60 IA	100	3	2.5
3	Operations Research	30	2	40 IA	60 IA	100	3	2.5
4	Human Resources Management	30	2	40 IA	60 IA	100	3	2.5
5	Legal Aspects of Business & Taxation	30	2	40 IA	60 IA	100	3	2.5
6	Business Research Methods	30	2	40 IA	60 IA	100	3	2.5
7	Specialisation Elective I	30	2	40 IA	60 IA	100	3	2.5
8	Specialisation Elective II	30	2	40 IA	60 IA	100	3	2.5
			Total No of Credits					**20**

UA: - University Assessment; IA: - Internal Assessment

Electives (Students are supposed to choose any two of the following specialization Electives as per their area of specialization)

Semester II Marketing Specialisation Electives (Any Two)

Rural Marketing
Event Management
Retail Management
Export Documentation & Procedures

Semester II Finance Specialisation Electives (Any Two)

Financial Markets, Products & Institutions
Analysis of Financial Statements
International Finance
Banking & Insurance

Semester II Human Resource Specialisation Electives (Any Two)

Indian Ethos in Management
Human Resource Planning
Human Resource Information Systems
Compensation & Benefits

Semester II Operations Specialisation Electives (Any Two)

Total Quality Management
Supply Chain Risk and Performance Measurement
Designing Operations Systems
Technology Management & Manufacturing Strategy

Semester II Information Technology Specialisation Electives (Any Two)

E – Commerce
Networking and Communications
Enterprise Applications
Software Quality Assurance & Marketing

Semester II Corporate Law Specialisation Electives (Any Two)

Legal environment of business
Legal Theories and Documentation
REALTY
Regulatory Aspects of Marketing and Advertising

Semester II Education Management Specialisation Electives (Any Two)

Education as a system
Technologies for learning
Historical Issues and Education Policy
Curriculum Management and Planned Change

Semester II Consulting Specialisation Electives (Any Two)

Consulting Tools
International Consulting
Consulting Solutions
Consulting and Culture

MMS –Semester III – Information Technology Specialisation

Sr. No.	Subject	Teaching Hours		Assessment Pattern				
		No. of Sessions of 90 minutes	No. of Sessions of 90 minutes per week	Continuous Assessment	Semester End Examination	Total Marks	Duration of Theory Paper	No of Credits
1	**International Business**	30	2	40 IA	**60 UA**	100	3	2.5
2	Strategic Management	30	2	40 IA	60 IA	100	3	2.5
3	**Software Engineering**	30	2	40 IA	**60 UA**	100	3	2.5
4	Business Intelligence and Analytics	30	2	40 IA	60 IA	100	3	2.5
5	Enterprise Resource Planning	30	2	40 IA	60 IA	100	3	2.5
6	Knowledge Management	30	2	40 IA	60 IA	100	3	2.5
7	Information Technology Elective – I	30	2	40 IA	60 IA	100	3	2.5
8	Information Technology Elective – II	30	2	40 IA	60 IA	100	3	2.5
9	Summer Internship	100						2.5
			Total No of Credits					**22.5**

UA: - University Assessment; IA: - Internal Assessment

Electives (Students are supposed to choose any two of the following specialization Electives)

Semester III Information Technology Specialisation Electives (Any Two)

Technology Platforms
Database Management Systems
Software Testing
Information Systems Audit

MMS –Semester IV – Information Technology Specialisation

Sr. No.	Subject	Teaching Hours		Assessment Pattern				
		No. of Sessions of 90 minutes	No. of Sessions of 90 minutes per week	Continuous Assessment	Semester End Examination	Total Marks	Duration of Theory Paper	No of Credits
1	**Management Control Systems**	30	2	40 IA	**60 UA**	100	3	2.5
2	Creativity & Innovation Management	30	2	40 IA	60 IA	100	3	2.5
3	Project Management	30	2	40 IA	60 IA	100	3	2.5
4	IT Infrastructure Management	30	2	40 IA	60 IA	100	3	2.5
5	Information Technology Elective – I	30	2	40 IA	60 IA	100	3	2.5
6	Information Technology Elective – II	30	2	40 IA	60 IA	100	3	2.5
7	Industry Oriented Dissertation Project	100						2.5
			Total No of Credits					**17.5**

UA: - University Assessment; IA: - Internal Assessment

Electives (Students are supposed to choose any two of the following specialization Electives)

Semester IV Information Technology Specialisation Electives (Any Two)

Technology Competition and Strategy
Data warehousing & Data Mining
Managing Technology Business
Technology Forecasting

Semester	Total No of Credits
Semester I	20
Semester II	20
Semester III	22.5
Semester IV	17.5
Total	**80**

MMS SEMESTER – I
(All Specialisations)

Perspective Management (15 Sessions of 3 Hours Each) Sem I

S. No.	Particulars	Sessions
1	➢ Management : Science, Theory and Practice - The Evolution of Management ➢ Thought and the Patterns of Management Analysis - Management and Society : ➢ Social Responsibility and Ethics - Global and Comparative Management - The ➢ Basis of Global Management – Functions of Management-The Nature and Purpose ➢ of Planning - Objectives - Strategies, Policies and Planning Premises - Decision ➢ Making - Global Planning.	**3 Sessions of 3 Hours**
2	➢ The Nature of Organizing - Organizational Structure : Departmentation - Line/Staff ➢ Authority and Decentralization - Effective Organizing and Organizational Culture - ➢ Global Organizing. Co-ordination functions in Organisation - Human Factors and ➢ Motivation - Leadership - Committees and group Decision Making - ➢ Communication - Global Leading.	**2 Sessions of 3 Hours**
3	➢ The System and Process of Controlling - Control Techniques and Information ➢ Technology - Global Controlling and Global Challenges – Direction Function – Significance.	**2 Sessions of 3 Hours**
4	➢ **"Mental Conditioning"-**Cover areas such as Entrepreneur Versus Manager: Risk and Rewards; To be a Master and not a Servant; Social: contribution: creating jobs. Work when and where you want; Scope for innovation and creativity.	**2 Sessions of 3 Hours**
5	➢ **Strategic Management: -**Definition, Classes of Decisions, Levels of Decision, Strategy, Role of different Strategist, Relevance of Strategic Management and its Benefits, Strategic Management in India	**2 Sessions of 3 Hours**

6	**Recent Trends in Management: -** Social Responsibility of Management – environment friendly management Management of Change Management of Crisis Total Quality Management Stress Management International Management	**2 Sessions of 3 Hours**
7	Case Studies and Presentations.	**2 Sessions of 3 Hours**

Reference Text

1. Management – A competency building approach – Heil Reigel / Jackson/ Slocum
2. Principles of Management – Davar
3. Good to Great – Jim Collins
4. Stoner, Freeman & Gulbert: Management (Prentice Hall India)
5. V.S.P. Rao & V. Hari Krishna: Management Text & Cases (Excel Books)
6. Heinz Weirich: Management (Tata McGraw Hill)
7. Certo: Modern Management (Prentice Hall India)
8.Management – Principles, Processes and Practices – Anil Bhat and Arya Kumar – Oxford Publications
9. Management – Theory & Practice – Dr Vandana Jain – International Book House Ltd
10.Principles of Management – Esha Jain – International Book House Ltd
11. Management Today – Principles & Practice – Burton – McGraw Hill Publications

Business Communication & Management Information Systems (15 Sessions of 3 Hours Each) Sem I

Business Communication

SL.No	Particulars	Sessions
1	Introduction to Managerial Communication Understanding the Components of Communication Small Group and Team Communication Business and Professional Communication	**2 Sessions of 3 Hours Each**
2	Written Analysis and Communication Spoken Business Communication	**1 Session of 3 Hours**
3	Cultural Identities and Intercultural Communication Difficult Communication	**1 Session of 3 Hours**
4	Intercultural Communication Competence Organizational Communication	**1 Session of 3 Hours**
5	Persuasive Communication Barriers to Communication	**1 Session of 3 Hours**

Reference Text

1. Cottrell, S. (2003) The study skills handbook – 2nd Ed Macmillan
2. Payne, E. & Whittaker L. (2000) Developing essential study skills, Financial Times – Prentice Hall
3. Turner, J. (2002) How to study: a short introduction – Sage
4. Northledge, A. (1990) The good study guide The Open University
5. Giles, K. & Hedge, N. (1995) The manager's good study guide The Open University
6. Drew, S. & Bingham, R. (2001) The student skills guide Gower
7. O'Hara, S. (1998) Studying @ university and college Kogan Page
8. Buzan, T. & Buzan, B. (2000) The Mind Map Book BBC Books
9. Svantesson, I. (1998) Learning maps and memory skills, Kogan Page
10. Theosarus – Merrilium – Oxford
11. Sen: Communication Skills (Prentice Hall India)
12. J . V. Vilanilam: More effective Communication(Sage)
13. Mohan: Developing Communication Skills(MacMillan)
14. Business Communication – Hory Sankar Mukherjee – Oxford Publications
15. Business Communication – Sangeeta Magan – International Book House Ltd
16. Corporate Communications – Argenti – McGraw Hill Publications

Management Information Systems

SL.No	Particulars	Sessions
1	❖ Basic Information Concepts and Definitions ❖ Need for Information and Information Systems (IS) in an organization ❖ Characteristics of Information and Organisation with respect to organization form, structure , philosophy, hierarchy etc	**1 Session of 3 Hours**
2	❖ Types of IS – Transaction ❖ Operational Control ❖ Management Control ❖ Decision Support ❖ Executive Information Systems	**1 Session of 3 Hours**
3	❖ Determining Information Needs for an Organisation/Individual Manager ❖ Overview of use of data flow method, analysis of information for decision processes etc.	**1 Session of 3 Hours**
4	❖ Strategic use of Information and IS – Use of Information for Customer Bonding ❖ For Knowledge Management ❖ For innovation, ❖ For Managing Business Risks ❖ For Creating a new business models and new business reality.	**2 Sessions of 3 Hours Each**
5	❖ Information Security – ❖ Sensitize students to the need for information security ❖ Concepts such as confidentiality, Integrity and Availability. Types of threats and risk, overview of some of the manual, procedural and automated controls in real life IT environments.	**2 Sessions of 3 Hours Each**
6	❖ Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text:

1. MIS a Conceptual Framework by Davis and Olson
2. Analysis and Design of Information Systems by James Senn
3. Case Studies : Case on ABC Industrial Gases – Author : Prof Pradeep Pendse
Mrs Fields Cookies – Harvard Case Study
Select Business Cases identified by each Group of Students for work thru the entire subject
2-3 Cases on Requirements Management – Author : Prof Pradeep Pendse
4. O'brien: MIS (TMH)
5. Ashok Arora & Bhatia: Management Information Systems (Excel)
6. Jessup & Valacich: Information Systems Today (Prentice Hall India)
7. L. M. Prasad : Management Information Systems (Sultan Chand)
8. Management Information Systems – Girdhar Joshi – Oxford Publications
9. Management Information Systems – M.Jaiswal & M.Mittal – Oxford Publications
10. Management Information Systems – Hitesh Gupta – International Book House Ltd
11. Management Information Systems – Dr Sahil Raj – Pearson Publications
12. Introduction to Information Systems – Leon – McGraw Hill Publications
13. Management Information Systems – Davis – McGraw Hill Publications
14. Management Information System – O'Brien – McGraw Hill Publications

Organizational behavior 100 Marks (15 Sessions of 3 Hours Each) Sem I

SL.No	Particulars	Sessions
1	Introduction to OB Origin, Nature and Scope of Organisational Behaviour Relevance to Organisational Effectiveness and Contemporary Issues.	**1 Session of 3 Hours**
2	Personality: Meaning and Determinants of Personality Process of Personality Formation Personality Types Assessment of Personality Traits for Increasing Self Awareness.	**1 Session of 3 Hours**
3	Perception, Attitude and Value Perceptual Processes, Effect of perception on Individual Decision-Making, Attitude and Behaviour. Sources of Value Effect of Values on Attitudes and Behaviour. Effects of Perception, Attitude and Values on Work Performance.	**2 Sessions of 3 Hours Each**
4	Motivation Concepts : Motives Theories of Motivation and their Applications for Behavioural Change.	**2 Sessions of 3 Hours Each**
5	Group Behaviour and Group Dynamics Work groups formal and informal groups and stages of group development. Concepts of Group Dynamics, group conflicts and group decision making. Team Effectiveness : High performing teams, Team Roles, cross functional and self directed teams	**2 Sessions of 3 Hours Each**
6	Organisational Design: Structure, size, technology Environment of organisation; Organizational Roles: -Concept of roles; role dynamics; role conflicts and stress. Organisational conflicts	**2 Sessions of 3 Hours Each**
7	Leadership: Concepts and skills of leadership Leadership and managerial roles Leadership styles and effectiveness Contemporary issues in leadership. Power and Politics: sources and Uses of power; politics at workplace Tactics and strategies.	**2 Sessions of 3 Hours Each**

8	Organisation Development Organisational Change and Culture Environment, Organisational culture and climate Contemporary issues relating to business situations Process of change and Organizational Development	**1 Session of 3 Hours**
9	Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text

1. Understanding Organizational Behavior **–** Udai Pareek
2. Organizational Behavior **–** Stephen Robbins
3. Organizational Behavior **–** Fred Luthans
4. Organizational Behavior **–** L. M. Prasad (Sultan Chand)
5. Organisational Behaviour – Dipak Kumar Bhattacharya – Oxford Publications
6. Organisational Behaviour – Dr Chandra sekhar Dash – International Book House Ltd
7. Organisational Behaviour – Meera Shankar – International Book House Ltd
8. Management & Organisational Behaviour – Laurie Mullins – Pearson Publications
9. Organisational Behaviour, Structure, Process – Gibson – McGraw Hill Publications
10. Organisational Behaviour – McShane – McGraw Hill Publications

Financial Accounting 100 marks (15 Sessions of 3 Hours Each) Sem I

SL.No	Particulars	Sessions
1	• Introduction to Accounting • Concept and necessity of Accounting • An Overview of Income Statement and Balance Sheet.	**1 Session of 3 Hours**
2	• Introduction and Meaning of GAAP • Concepts of Accounting • Impact of Accounting • Concepts on Income Statement and Balance Sheet.	**1 Session of 3 Hours**
3	• Accounting Mechanics • Process leading to preparation of Trial Balance and Financial Statements • Preparation of Financial Statements with Adjustment Entries.	**2 Sessions of 3 Hours Each**
4	• Revenue Recognition and Measurement • Capital and Revenue Items • Treatment of R & D Expenses • Preproduction Cost • Deferred Revenue Expenditure etc.	**1 Session of 3 Hours**
5	• Fixed Assets and Depreciation Accounting • Evaluation and Accounting of Inventory.	**1 Session of 3 Hours**
6	• Preparation and Complete Understanding of Corporate Financial Statements • 'T' Form and Vertical Form of Financial Statements.	**2 Sessions of 3 Hours**
7	• Important Accounting Standards.	**1 Session of 3 Hours**
8	• Corporate Financial Reporting – Analysis of Interpretation thereof with reference to Ratio Analysis. Fund Flow, Cash Flow. • **Corporate Accounting** Accounting of Joint Stock Companies: Overview of Share Capital and Debentures, Accounting for Issue and forfeiture of Shares, Issue of Bonus Share. Issue of Debentures, Financial Statements of Companies: Income Statement and Balance Sheet in Schedule VI. Provisions of the Companies Act: Affecting preparation of Financial Statements, Creative Accounting, Annual Report, Presentation and analysis of Audit reports and Directors report. (Students should be exposed to reading of Annual Reports of Companies both detailed and summarized version).	**3 Sessions of 3 Hours Each**

9	• Inflation Accounting & Ethical Issue in Accounting.	**1 Session of 3 Hours**
10	• Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference text:

1. Financial Accounting: Text & Case: Deardon & Bhattacharya
2. Financial Accounting for Managers – T.P.Ghosh
3. Financial Accounting – Reporting & Analysis – Stice & Diamond
4. Financial Accounting: R.Narayanaswamy
5. Full Text of Indian Accounting standard – Taxman Publication
6. Financial Accounting for Management – Paresh Shah – Oxford Publications
7. Financial Accounting – Bhushan Kumar Goyal & H.N Tiwari – International Book House Ltd
8. Accounting & Financial Analysis – Dr Santosh Singhal – International Book House Ltd
9. Financial Accounting – Libby – McGraw Hill Publications
10. Financial Accounting – Mukherjee & Hanif – Financial Accounting

Operations Management 100 Marks (15 Sessions of 3 Hours Each) Sem I

SL.No	Particulars	Sessions
1	• Introduction • Operations Strategy • Competitive Advantage • Time Based Competition	**1 Session of 3 Hours**
2	• Product Decision and Analysis • Product Development	**1 Session of 3 Hours**
3	• Process Selection • Process Design • Process Analysis	**1 Session of 3 Hours**
4	• Facility Location • Facility Layout	**2 Sessions of 3 Hours**
5	• Capacity Planning • Capacity Decisions • Waiting Lines	**1 Session of 3 Hours**
6	• Aggregate Planning	**1 Session of 3 Hours**
7	• Basics of MRP / ERP	**1 Session of 3 Hours**
8	• Basics of Scheduling	**1 Session of 3 Hours**
9	• Basics of Project Management	**1 Session of 3 Hours**
10	• Basics of Work Study, Job Design and Work Measurement	**1 Session of 3 Hours**
11	• Basics of Quality Control, Statistical Quality Control • And Total Quality Management	**1 Session of 3 Hours**
12	• Basics of Environmental Management • Basics of ISO 14000 / 9000 • Basics of Value Engineering & Analysis	**1 Session of 3 Hours**
13	• Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference text

1. Production & Operations Management -S. N. Chary
2. Production & Operations Management -James. B. Dilworth
3. Modern Production Management -By E. S. BUFFA
4. Production and Operations Management -By Norman Gaither
5. Theory and problem in Production and operations Management -By S. N. Chary
6. Production and operation Management - By Chunawalla Patel
7. Production & operation Management – Kanishka Bedi – Oxford
8. Production & operation Management – R.C. Manocha
9. Production & operation Management – Muhlemann
10. Production & Operations Management – Kanishka Bedi – Oxford Publications

Marketing Management 100 Marks (15 Sessions of 3 Hours Each) Sem I

SL.No	Particulars	Sessions
1	**Understanding the Basics:** Concept of Need, Want and Demand Concept of Product and Brand Business Environment in India	**1 Session of 3 Hours**
2	• Introduction to Marketing concept • Evolution of marketing & Customer orientation	**1 Session of 3 Hours**
3	• Marketing Environment and Evaluation of Market opportunities	**1 Session of 3 Hours**
4	• Market research & Marketing Information Systems and Demand forecasting and Market potential analysis	**1 Session of 3 Hours**
5	• Consumer buying process & Organizational buying behavior	**1 Session of 3 Hours**
6	• Pillars of Marketing - Market segmentation, Target marketing Positioning & Differentiation	**2 Sessions of 3 Hours Each**
7	• Marketing Mix and Product decisions **–** Product Life cycle	**1 Session of 3 Hours**
8	• New Product development process	**1 Session of 3 Hours**
9	• Distribution decisions **–** Logistics & Channel decisions	**1 Session of 3 Hours**
10	• Promotion decisions **–** Integrated Marketing communications concept, communication tools	**1 Session of 3 Hours**
11	• Personal selling & Sales management	**1 Session of 3 Hours**
12	• Pricing decisions	**1 Session of 3 Hours**
13	• Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text

1. Marketing Management - Kotler, Keller, Koshy & Jha – 14th edition,

2. Basic Marketing,13th edition, Perrault and McCarthy

3. Marketing management – Indian context Dr.Rajan Saxena

4. Marketing Management – Ramaswamy & Namkumari

5. R. L. Varshuey & S.L.Gupta: Marketing Management An Indian Perspective (Sultan Chand)

6. Adrich Palmer: Introduction to Marketing (Oxford)

7.Marketing – Asian Edition – Paul Baines, Chris Fill, Kelly Page and Piyush K.Sinha – Oxford Publications

8. Marketing Management – Tejashree Patankar – International Book House Ltd

9. Marketing Management – Rajendra P Maheshwari & Lokesh Jindal – International Book House Ltd

10. Marketing Management – Peter – McGraw Hill Publications

Managerial Economics 100 Marks (15 Sessions of 3 Hours Each) Sem I

SL.No	Particulars	Sessions
1	• The Meaning, Scope & Methods of Managerial Economics	**1 Session of 3 Hours**
2	• Economics Concepts relevant to Business • Demand & Supply • Production, Distribution, Consumption & Consumption Function • Cost, Price, Competition, Monopoly, Profit, • Optimisation, Margin & Average, Elasticity, Macro & Micro Analysis.	**2 Sessions of 3 Hours Each**
3	• Demand Analysis & Business Forecasting • Market Structures, Factors Influencing Demand • Elasticities & Demand Levels • Demand Analysis for various Products & Situations • Determinants of Demands for Durable & Non-durable Goods Long Run & Short Run Demand • Autonomous Demand Industry and Firm Demand.	**2 Sessions of 3 Hours Each**
4	• Cost & Production Analysis • Cost Concepts, Short Term and Long Term • Cost Output Relationship • Cost of Multiple Products Economies of Scale Production Functions • Cost & Profit Forecasting • Breakeven Analysis.	**2 Sessions of 3 Hours Each**
5	• Market Analysis • Competition, Kinds of Competitive Situations, Oligopoly and Monopoly, • Measuring Concentration of Economic Power.	**1 Session of 3 Hours**
6	• Pricing Decisions Policies & practices • Pricing & Output Decisions under Perfect & Imperfect Competition • Oligopoly & Monopoly, Pricing Methods • Product-line Pricing • Specific Pricing Problem • Price Dissemination • Price Forecasting.	**2 Sessions of 3 Hours Each**

7	• Profit Management • Role of Profit in the Economy • Nature & Measurement of Profit, Profit Policies • Policies on Profit Maximisation • Profits & Control • Profit Planning & Control.	**1 Session of 3 Hours**
8	• Capital Budgeting • Demand for Capital • Supply of Capital • Capital Rationing • Cost of Capital • Appraising of Profitability of a Project • Risk & Uncertainty • Economics & probability Analysis.	**1 Session of 3 Hours**
9	• Macro Economics and Business • Business Cycle & Business Policies • Economic Indication • Forecasting for Business • Input-Output Analysis.	**1 Session of 3 Hours**
10	• Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text

1. Managerial Economics – Joel Dean
2. Managerial Economics: Concepts & Cases – Mote, Paul & Gupta.
3. Fundamentals of Managerial Economics – James Pappas & Mark Hershey.
4. Managerial Economics – Milton Spencer & Louis Siegleman.
5. Economics - Samuelson
6. Managerial Economics – Suma Damodaran – Oxford Publications
7. Principles of Economics – D.D Chaturvedi & Anand Mittal – International Book House Ltd
8. Managerial Economics – D.D Chaturvedi & S.L Gupta – International Book House Ltd
9. Economics for Business – John Sloman, Mark Sutcliffe – Pearson Publications
10. Principles of Economics – Frank – McGraw Hill Publications
11. Managerial Economics & Organisational Structure – Brickley – McGraw Hill Publications

Business Statistics 100 Marks (15 Sessions of 3 Hours Each) Sem I

SL.No	Particulars	Sessions
1	• Basic Statistical Concepts • Summarisation of Data • Frequency Distribution • Measures of Central Tendency • Measures of Dispersion • Relative Dispersion, Skewness	**1 Session of 3 Hours**
2	• Elementary Probability Theory • Relative Frequency Approach • Axiomatic Approach • Subjective Probability • Marginal & Conditional Probability • Independence/Dependence of Events • Bayes' Theorem • Chebyseheff's Lemma	**2 Sessions of 3 Hours Each**
3	• Elementary Statistical Distributions • Binomial, Poisson, Hypergeometric • Negative Exponential, Normal, Uniform	**1 Session of 3 Hours**
4	• Sampling distributions • For Mean, Proportion, Variance • From Random Samples • Standard Normal (3); Student's; Chi-Sqare • And Variance ratio (F) Distribution	**2 Sessions of 3 Hours Each**
5	• Statistical Estimation • Point & Interval estimation • Confidence Interval for Mean, Proportion & Variance	**1 Session of 3 Hours Each**

6	• Test of Hypothesis • Tests for specified values of Mean, • Proportion & Standard Deviation • Testing equality of two Means, • Proportion & Standard Deviation • Test of goodness - of fit	**2 Sessions of 3 Hours Each**
7	• Simple Correlation & Regression/Multiple Correlation & Regression • Spearman's rank Correlation	**2 Sessions of 3 Hours Each**
8	• Analysis of Variance • One-way & Two-way Classification (for Equal Class)	**1 Session of 3 Hours**
9	Elements of Integration & Differentiation	**1 Session of 3 Hours**
10	Elements of Determinants	**1 Session of 3 Hours**
11	Elements of Matrix algebra	**1 Session of 3 Hours**

Reference Text

1. Statistics for Management – Richard L Levin
2. Statistics a fresh approach – D.H.Sanders
3. Statistics concepts & applications – H.C.Schefler
4. Practical Business Statistics – Andrew F. Siegel
5. Statistics for Business with Computer applications – Edward Minieka & Z.D.Kurzeja
6. Basic Statistics for Business & Economics – Mason, Marehas
7. An Introduction to statistical methods – C. B. Gupta & Vyay Gupta (Vikas)
8. R.S. Bhardway: Business Statistics(Excel Books)
9. Sharma : Business Statistics (Pearson)
10. Beri: Statistics for Management (TMH)
11. Business Statistics – Dr S.K Khandelwal – International Book House Ltd
12. Business Statistics – An Applied Orientation – P.K Vishwanathan – Pearson Publications

MMS SEMESTER – II
(Core Papers All Specialisations)

Cost & Management Accounting 100 Marks (15 Sessions of 3 Hours Each) Sem II

SL.No	Particulars	Sessions
1	**Introduction** Accounting for Management, Role of Cost in decision making, Comparison of Management Accounting and Cost Accounting, types of cost, cost concepts, Elements of cost - Materials, Labour and overheads and their Allocation and Apportionment, preparation of Cost Sheet, Methods of Costing	**1 Session of 3 Hours**
2	• Preparation of cost sheet	**2 Sessions of 3 Hours Each**
3	• Methods of costing – with special reference to job costing, process costing, services costing	**2 Sessions of 3 Hours Each**
4	• Distinction & relationship among Financial Accounting, Cost accounting & Management Accounting	**1 Session of 3Hours**
5	**Marginal Costing** Marginal Costing versus Absorption Costing, Cost-Volume-Profit Analysis and P/V Ratio Analysis and their implications, Concept and uses of Contribution & Breakeven Point and their analysis for various types of decision-making like single product pricing, multi product pricing, replacement, sales etc. Differential Costing and Incremental Costing: Concept, uses and applications, Methods of calculation of these costs and their role in management decision making like sales, replacement, buying.	**3 Sessions of 3 Hours Each**
6	**Budgeting** Concept of Budget, Budgeting and Budgetary Control, Types of Budget, Static and Flexible Budgeting, Preparation of Cash Budget, Sales Budget, Production Budget, Materials Budget, Capital Expenditure Budget and Master Budget, Advantages and Limitations of Budgetary Control. Standard Costing: Concept of standard costs, establishing various cost standards, calculation of Material Variance, Labour Variance, and Overhead Variance, and its applications and implications.	**2 Sessions of 3 Hours Each**
7	**Responsibility Accounting and Transfer Pricing** Concept and various approaches to Responsibility Accounting, concept of investment center, cost center, profit center and responsibility center and its managerial implications, Transfer Pricing: concept, types & importance. Neo Concepts for Decision Making: Activity Based Costing, Cost Management, Value Chain Analysis, Target Costing & Life Cycle Costing : concept, strategies and applications of each.	**2 Sessions of 3 Hours Each**
8	• Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text:

1. Management Accounting for profit control – Keller & Ferrara
2. Cost Accounting for Managerial Emphasis – Horngreen
3. T. P. Ghosh: Financial Accounting for managers(Taxmann).
4.Management Accounting – Paresh Shah – Oxford Publications
5.Cost Accounting – Dr N.K Gupta & Rajiv Goel – International Book House Ltd
6.Cost Accounting – A Managerial Emphasis – Charles T Horngren – Pearson Publications
7.Management Accounting – Debarshi Bhattacharya – Pearson Publications

Financial Management 100 marks (15 Sessions of 3 Hours Each) Sem II

SL.No	Particulars	Sessions
1	Objective of Financial Management Financial Performance Appraisal using Ratio Analysis, Funds Flow Analysis & Cash Flow Analysis	**2 Sessions of 3 Hours Each**
2	Sources of Finance - Short Term/Long Term, Domestic / Foreign, Equity/Borrowings/Mixed etc. Cost of Capital & Capital - Structure Planning, Capital Budgeting & Investment Decision Analysis (using Time Value	**2 Sessions of 3 Hours Each**
3	➢ Working Capital Management - Estimation & Financing, Inventory Management, Receivable Management, Cash Management ➢ Divided Policy / Bonus - Theory & Practice	**2 Sessions of 3 Hours Each**
4	Investment (Project) identification, feasibility analysis with sensitivities, constraints and long term cash flow projection Financing Options - structuring & evaluation off-shore/ on-shore Instruments, multiple option bonds, risk analysis, financial engineering, leasing, hire purchase, foreign direct investment, private placement, issue of convertible bonds etc.	**2 Sessions of 3 Hours Each**
5	Financial Benchmarking -- concept of shareholder value maximization, interest rate structuring, bond valuations Banking - consortium banking for working capital management, credit appraisal by banks, periodic reporting, enhancement of credit limits, bank guarantees, trade finance, receivable financing, documentary credit, routing of documents through banks, correspondent banking, sales and realisation with foreign country clients, process of invoicing, reail products, high value capital equipment, periodic invoicing for large value infrastructure projects, Escrow accounts	**3 Sessions of 3 Hours Each**
6	➢ Valuation of projects and investment opportunities - due diligence procedures ➢ Credit Rating of Countries/ State / Investment & Instruments ➢ Joint Venture formulations - FIPS / RBI ➢ Infrastructure financing ➢ Issues & considerations, financial feasibility, pricing & earning model	**2 Sessions of 3 Hours Each**
7	Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text:

1. Financial Management - Brigham
2. Financial Management - Khan & Jain
3. Financial Management - Prasanna Chandra
4. Financial Management - Maheshwari
5. Financial Management – S.C.Pandey
6. Van Horne & Wachowiz: Fundamentals of Financial Management (Prentice Hall India)
7. Sharan: Fundamentals of Financial Management (Pearson)
8. Financial Management – Rajiv Srivastava & Anil Misra – Oxford Publications
9. Financial Management – Chandra Hariharan Iyer – International Book House Ltd
10.Fundamentals of Financial Management – Sheeba Kapil – Pearson Publications
11. Strategic Financial Management – Prasanna Chandra

Operations Research 100 Marks (15 Sessions of 3 Hours Each) Sem II

SL.No	Particulars	Sessions
1	❖ Introduction to OR : Concepts, Genesis, Application Potential to Diverse Problems in Business & Industry, Scope and Limitations. ❖ Assignment Problem (AP) – ➢ Concepts, Formulation of Model ➢ Hungarian Method of Solution – ➢ Maximisation / Minimisation – ➢ Balanced / Unbalanced – ➢ Prohibited Assignments - Problems.	**2 Sessions of 3 Hours Each**
2	❖ Transportation Problem (TP) :- ➢ Concepts, Formulation of Model - Solution Procedures for IFS and Optimality Check ➢ Balanced / Unbalanced ➢ Maximization / Minimization ➢ Case of Degeneracy ➢ Prohibited Routing Problems ➢ Post-Optimal Sensitivity Analysis.	**2 Sessions of 3 Hours Each**
3	❖ Linear Programming (LP) :- ➢ Concepts, Formulation of Models ➢ Diverse Problems – Graphical Explanation of Solution - Maximisation / Minimisation – ❖ Simplex Algorithm – ➢ Use of Slack /Surplus / Artificial Variables – ➢ Big M Method/Two-Phase Method – ➢ Interpretation of the Optimal Tableau – ➢ (Unique Optimum, Multiple Optimum, Unboundedness, Infeasibility & Redundancy Problems.)	**2 Sessions of 3 Hours Each**
4	❖ Linear Programming (LP) :- ➢ Duality Principle - Primal /Dual Inter-relation ➢ Post-Optimal Sensitivity Analysis for changes in b-vector, c-vector, Addition/Deletion of Variables/Constraints ➢ Dual Simplex Method - Problems Limitations of LP vis-a-vis - Non-linear Programming Problems. ➢ Brief introduction to Non-LP models and associated problems.	**1 Session of 3 Hours**

5	❖ Network Analysis ➢ Minimal Spanning Tree Problem - Shortest Route Problem ➢ Maximal Flow in Capacitated Network - Concepts and Solution Algorithm as Applied to Problem ➢ Project Planning & Control by use of CPM/PERT Concepts. Definitions of Project ➢ Jobs, Events - Arrow Diagrams - Time Analysis and Derivation of the Critical Path – ➢ Concepts of Floats (total, free, interfering, independent) - Crashing of a CPM Network - Probability Assessment in PERT Network.	**2 Sessions of 3 Hours Each**
6	❖ Queuing (Waiting-line) Models ➢ Concepts - Types of Queuing Systems (use of 6 Character Code) - Queues in Series and Parallel – ➢ Problems based on the results of following models (M/M/1) Single Channel Queue with Poisson Arrival Rate, and Negative Exponential Service Time, With and Without Limitations of Queue Size (M/G/1) ➢ Single Channel with Poisson Arrival Rate, and General Service Time, PK-Formulae.	**1 Session of 3 Hours**
7	❖ Inventory Models ➢ Types of Inventory Situations ➢ Fixed Quantity/Fixed Review Period ➢ Costs Involved - Deterministic Probability Models - Economic-Order-Quantity (EOQ) and ➢ EBQ for Finite Production Rate - Sensitivity Analysis of EOQ-EOQ Under Price Break - ➢ Determination of Safety Stock and Reorder Levels - Static Inventory Model - (Insurance Spares).	**1 Session of 3 Hours**
8	❖ Digital Simulation – ➢ Concepts - Areas of Application - Random Digits and Methods of Generating Probability Distributions ➢ Application to Problems in Queueing, Inventory, New ➢ Product, Profitability, Maintenance etc.	**1 Session of 3 Hours**

9	❖ Replacement and Maintenance Models :- ➢ Replacement of Items Subject to Deterioration and Items Subject Random Total Failure ➢ Group vs Individual Replacement Policies.	**1 Session of 3 Hours**
10	❖ Game Theory - Concepts - 2 – person ➢ N-person games - Zero - sum and Non-zero-sum games Solution Procedures to 2-person zero sum games ➢ Saddle point Mixed Strategy ➢ Sub-games Method for m x 2 or 2 x n games - Graphical Methods	**1 Session of 3 Hours**
11	❖ Equivalence of Game Theory and Linear Programming Models ➢ Solution of 3x3 Games by LP Simplex including Duality ➢ Application for Maximising / Minimising Players' Strategy.	**1 Session of 3 Hours**

Note: The teaching of the above subject is to be integrated with the most widely available software.

Reference Text

1. Operation Research - Taha
2. Quantitative Techniques in Management – N.D.Vohra
3. Quantitative Techniques in Management – J.K.Sharma
4. Operations Research, Methods & Problems – Sasieni M. & others
5. Principles of Operations Research – N.M. Wagher
6. Operation Research – V.K.Kapoor
7. C. R. Kothari: Introduction to Operations Research (Vikas)
8. Gupta & Khanna: Quantitative Techniques for decision making(Prentice Hall India)
9. Introduction to Operations Research – Gillett – McGraw Hill Publications
10. Introduction to Management Science – Hillier – McGraw Hill Publications

Human Resources Management 100 Marks (15 Sessions of 3 Hours Each) Sem II

SL.No	Particulars	Sessions
1	❖ Human Resource Management – ➢ Its Scope, Relationship with other Social Sciences - ➢ Approaches to Human Resource Management / Inter-Disciplinary Approach	**1 Session of 3 Hours**
2	❖ Organization of Personnel Functions – ➢ Personnel Department, Its Organization, Policies, Responsibilities and Place in the Organization.	**1 Session of 3Hours**
3	➢ Manpower Planning ➢ Job Analysis ➢ Job Description ➢ Scientific Recruitment and ➢ Selection Methods.	**2 Sessions of 3 Hours**
4	❖ Motivating Employees – ➢ Motivational Strategies ➢ Incentives Schemes ➢ Job-enrichment, Empowerment - Job-Satisfaction ➢ Morale ➢ Personnel Turnover.	**2 Sessions of 3 Hours**
5	❖ Performance Appraisal Systems ➢ MBO Approach ➢ Performance Counselling ➢ Career Planning.	**2 Sessions of 3 Hours Each**
6	❖ Training & Development – ➢ Identification of Training Needs ➢ Training Methods ➢ Management Development Programmes.	**1 Session of 3 Hours**

7	❖ Organisation Development – ➢ Organisation Structures ➢ Re-engineering, Multi-Skilling ➢ BPR.	**1 Session of 3 Hours**
8	❖ Management of Organizational Change.	**1 Session of 3 Hours**
9	❖ HRD Strategies for Long Term Planning & Growth. Productivity and Human Resource Management	**2 Sessions of 3 Hours Each**
10	❖ Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text

1. Human Resource Management – P.Subba Rao
2. Personnel Management – C.B. Mammoria
3. Dessler: Human Resource Management(Prentice Hall India)
4. Personnel/Human Resource Management: DeCenzo & Robbins (Prentice Hall India)
5. D. K. Bhattacharya: Human Resource Management (Excel)
6. VSP Rao – Human Resource Management(Excel)
7. Gomez: Managing Human Resource (Prentice Hall India)
8. Human Resource Management – Dr P Jyothi and Dr D.N Venkatesh – Oxford Publications

Legal Aspects of Business & Taxation 100 Marks (15 Sessions of 3 Hours Each) Sem II

SL.No	Particulars	Sessions
1	Basic Concepts of Law (Definition of Law, Classification, Writs U/Article 226 & 32), Jurisdiction of Courts (Civil & Criminal prevailing within Mumbai) – Basics of Evidence (Oral, documentary, burden of proof, Examination – in – Chief, Cross Examination, re – examination) – Principles of Natural Justice (Audi Alterem Partem, Rule Against Bias, Speaking Order)	**1 Session of 3 Hours**
2	Indian Contract Act 1872 – Principles of Contract, sections – 2 – 30, 56, quasi – contracts, damages s/73 – 74. Special contracts (Indemnity, Guarantee, bailment, pledge, agency)	**2 Sessions of 3 Hours Each**
3	Indian Companies Act 2013 – Salient Features of the New Act	**3 Sessions of 3 Hours Each**
4	Competition Act – 2002 – Definition & S/3. S/4 and S/5	**1 Session of 3Hours**
5	Negotiable Instruments Act 1881, Concept of N.I (Promissory Note, Bill of Exchange & Cheque), Negotiation & dishonor of cheque U/S 138	**1 Session of 3 Hours Each**
6	Income Tax Act 1961 – Income, Residence, Heads of Income	**2 Sessions of 3 Hours Each**
7	Central Excise Act 1944, Principles of Liability for payment of Excise duty/CENVAT	**1 Session of 3 Hours Each**
8	Service Tax – General Review of Service Tax Liability	**1 Session of 3 Hours Each**
9	Central Sales Tax and Maharashtra VAT Act	**1 Session of 3 Hours Each**
10	Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text:

Bare Acts
Legal Aspects of Business – David Albquerque (Oxford University Press)
Business Law – N.D.Kapoor
Business Law – Bulchandani
Company Law – Avtar Singh
Income Tax – Dr. Singhania
Indirect Taxes – V.S.Datey
S. S. Gulshan: Mercantile Law (Excel Books)
A. K. Majumdar & G.K. Kapoor: Students guide to Company Law(Taxmann)
S. K. Tuteja: Business Law for Managers (Sultan Chand)

Business Research Methods 100 Marks (15 Sessions of 3 Hours Each) Sem II

SL.No	Particulars	Sessions
1	Relevance & Scope of Research in Management and steps involved in the Research Process	**1 Session of 3 Hours**
2	Identification of Research Problem and Defining MR problems	**1 Session of 3 Hours**
3	Research Design	**1 Session of 3 Hours**
4	Data – Collection Methodology Primary Data – Collection Methods Measurement Techniques Characteristics of Measurement Techniques – Reliability, Validity etc. Secondary Data Collection Methods Library Research References Bibliography, Abstracts, etc.	**2 Sessions of 3 Hours Each**
5	Primary and Secondary data sources Data collection instruments including in-depth interviews, projective techniques and focus groups	**2 Sessions of 3 Hours**
6	Data management plan – Sampling & measurement	**1 Session of 3 Hours**
7	Data analysis – Tabulation, SPSS applications data base, testing for association	**1 Session of 3 Hours**
8	Analysis Techniques Qualitative & Quantitative Analysis Techniques Techniques of Testing Hypothesis – Chi-square, T-test Correlation & Regression Analysis Analysis of Variance, etc. – Making Choice of an Appropriate Analysis Technique.	**3 Sessions of 3 Hours Each**
9	Research Report Writing and computer Aided Research Methodology – use of SPSS packages	**1 Session of 3 Hours**
10	Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text

1. Business Research Methods – Cooper Schindler
2. Research Methodology Methods & Techniques – C.R.Kothari
3. D. K. Bhattacharya: Research Methodology (Excel)
4. P. C. Tripathy: A text book of Research Methodology in Social Science(Sultan Chand)
5. Saunder: Research Methods for business students (Pearson)
6. Marketing Research –Hair, Bush, Ortinau (2nd edition Tata McGraw Hill)
7. Marketing Research Text & Cases – (Wrenn, Stevens, Loudon Jaico publication)
8. Marketing Research Essentials – McDaniels & Gates (3rd edition SW College publications)
9. Marketing Research – Aaker, Kumar, Day (7^{th} edition John Wiley & Sons)
10. Business Research Methods – Alan Bryman & Emma Bell – Oxford Publications
11. Business Research Methods – Naval Bajpai – Pearson Publications
12. Research Methodology – S.L Gupta & Hitesh Gupta – International Book House Ltd

MMS SEMESTER – II
INFORMATION TECHNOLOGY ELECTIVES

E – Commerce 100 marks (15 Sessions of 3 Hours Each) Sem II Elective

S. No.	Particulars	Sessions
1	**Introduction to Electronic Commerce:** Meaning, nature and scope; Channels of e - commerce; Business applications of e -commerce; Global trading environment and adoption of e-commerce. Business Models of E-commerce and Infrastructure; B2B, B2C, B2G and other models of e-commerce; Applications of e-commerce to supply chain management; product and service digitization; Remote servicing procurement, and online marketing and advertising E-commerce resources and infrastructure planning.	**2 Sessions of 3 Hours**
2	**Business to Consumer E-commerce Applications:** Cataloging; Order planning and order generation; Cost estimation and pricing; Order receipt and accounting; Order selection and prioritization: Order scheduling, fulfilling and delivery, Order billing and payment management; Post sales services.	**2 Sessions of 3 Hours**
3	**Business to Business E-Commerce:** Need and alternative models of B2B e - commerce; Using Public and private computer networks for B2B trading: EDI and paperless trading: characteristic features of Edi service arrangement; Internet based EDI; EDI architecture and standards; VANs; Costs of EDI infrastructure; Reasons for slow acceptability of EDI for trading; E-marketing – Traditional web promotion: Web counters; Web advertisements.	**3 Sessions of 3 Hours**
4	**Electronic Payment Systems and Order Fulfillment:** Types of payment systems - e-cash and currency servers, e-cheques, credit cards, smart cards, electronic purses and debit cards; Operational, credit and legal risks of e - payment, Risk management options for e - payment systems; Order fulfillment for e -commerce.	**2 Sessions of 3 Hours**
5	**Security Issues in E-Commerce:** Security risks of e-commerce-Types and sources of threats; Protecting electronic commerce assets and intellectual property; Firewalls; Client server network security; Data and message security; Security tools; Digital identity and electronic signature; Encryption approach to e-commerce security.	**2 Sessions of 3 Hours**
6	**Regulatory Environment of E-Commerce:** Borders and jurisdiction contracting and contract enforcement; International cyber laws -aims and salient provisions; cyber laws in India and their limitations; Taxation and e -commerce; Ethical issues in e -commerce.	**2 Sessions of 3 Hours**
7	Case Studies and Presentations.	**2 Sessions of 3 Hours**

Reference Text

1. Introduction to E-business- Ravi Kalakota
2. CIO magazine- www.cio.com
3. Technology Forecast- Price Waterhouse Coopers
4. McKinsey Quarterly- www.mckinseyquarterly.com

Networking and Communications 15 Sessions of 3 Hours Sem II Elective

SL.No	Particulars	Sessions
1	Need for networking, historical perspective	**1 Session of 3 Hours**
2	Various Classifications of Networks the basic principle of working and overview of technologies associated with each : Geographical spread – LAN/MAN/WAN Topology – Star, mesh etc. Medium of communication used – air, copper, fibre etc Switching technologies – Circuit and packet Protocols used – IP etc	**2 Session of 3 Hours**
3	Networking components – hub, switch , routers etc	**1 Session of 3 Hours**
4	Understanding Protocol Layers – ISO OSI Framework	**1 Sessions of 3 Hours**
5	Understanding the TCP/IP protocol	**1 Session of 3 Hours**
6	Understanding Domain Addresses	**1 Session of 3 Hours**
7	Other protocols required for a local area as well as wide area network - SLIP PPP , ICMP etc	**1 Session of 3 Hours**
8	Communications technologies such as Mobile technologies (CDMA/ GPRS), other Wireless technologies (802.11a/b/g), WI Max etc technologies and protocols used in VSATS such as DAMA, TDMA etc	**1 Session of 3 Hours**
9	Comparing the OSI model with the Internet protocol Stack	**1 Session of 3 Hours**
10	Telecom Technologies and services offered in the market place	**1 Session of 3 Hours**
11	Taking an integrated view of Networking in a large Corporate – Understanding how multiple technologies and protocols are used to create a large scale business Network and telecom infrastructure – the student should be able to work out a broad LAN /WAN/Telecom solution for a given organizational context. Understanding of the related economics is also included in the recommended solution.	**2 Sessions of 3 Hours**
12	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

1. Data and computer education By William Sterling
2. Principle of Communication By Kennedy
3. Data Communication By Tanunbum

Enterprise Applications 15 Sessions of 3 Hours 100 Marks Sem II Elective

SL.No	Particulars	Sessions
1	Overview of IT applications in a common manufacturing cum marketing organizations.	**1 Session of 3 Hours**
2	Overview of Applications in various Industry verticals such as Banking and Finance, Retail, Telecom, Healthcare etc	**1 Session of 3 Hours**
3	Enterprise Resource Planning (ERP) - Functional view of business processes and how they are integrated using an ERP. Benefits of ERP	**1 Session of 3 Hours**
4	Supply Chain Management – Need for Supply chain integration, Application overview of supply chain solution, advanced concepts such as Demand planning and Supplier Relationship management – functional and product perspective	**2 Sessions of 3 Hours**
5	Customer Relationship management – Concept of CRM, modules of a CRM product and what they do – such as sales force automation, forecasting, contact management etc	**1 Session of 3 Hours**
6	Business Intelligence and Data Warehousing – Purpose of Data Warehousing, difference between data warehouse and a conventional Database , Data warehousing products, Steps in building a data warehouse – Extraction, Transformation and Loading (ETL) etc Data marts v/s Data Warehouse Multidimensional Analysis tools Data Mining – Concept of Data Mining, Various models and algorithms for mining, technology tools used for data mining	**2 Sessions of 3 Hours**
7	Knowledge Management - Need for KM, Types of Knowledge, Capturing , storing, reusing knowledge , Implementing a KM initiative – application of KM in various industries	**1 Session of 3 Hours**
8	Enterprise Content Management – role of content management – ERP and other transaction related records, web content, and other unstructured content. Integrating Content management in organizational workflows and ERP systems etc Examples of content management tools and applications in various businesses	**2 Sessions of 3 Hours**
9	Enterprise Portals – Concept of an enterprise portal, benefits to an organization, Technologies available for building such portals.	**1 Session of 3 Hours**
10	Enterprise Application Integration- Challenges in integrating various enterprise applications – evolution of platform neutral concepts such as XML to achieve integration. – other modern technologies for application integration	**1 Session of 3 Hours**
11	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text: -

Demos/Screen Shots of ERP Software such as SAP, CRM and SCM products

Software Quality Assurance &Marketing 15 Sessions of 3 Hours 100 Marks Sem II Elective

SL.No	Particulars	Sessions
1	Software quality - Definition Software errors, software faults and software failures Software quality assurance – definition and objectives Software quality assurance vs. software quality control The objectives of SQA activities	**1 Session of 3 Hours**
2	Pre-project SQA Components Contract Review Development and Quality Plan	**1 Session of 3 Hours**
3	SQA components in Project life cycle activities assessment. Verification and Validation Various types of Reviews Inspections Walkthrough Software testing Impact of CASE Tools	**1 Session of 3 Hours**
4	Software Quality Factors Mccall's Quality Model Product, Process quality metrics	**2 Sessions of 3 Hours**
5	Standardization ISO 9001 and ISO 9000-3 SEI-CMM IEEE 1012 standard ISO/IEC 12207 standard.	**1 Session of 3 Hours**
6	**Software Marketing** **Global and Indian Software Industry Environment:** Historical Growth of the Industry, Market Size, Nature of Products, Projects and Services, Major Players, Industry Associations and their role in market development, Overview of India's Software Export Industry	**2 Sessions of 3 Hours**
7	**Services Marketing Mix:** 7 Ps of Services Marketing – Service Life Cycle Strategic Aspects of Software Marketing - Identification of potential markets, Industry/ Business analysis and creating/ sustaining competitive advantage - Segmenting, Targeting and Positioning.	**1 Session of 3 Hours**
8	**Promotion:** Role of Promotion in Software Marketing; Personnel Selling, Advertising and Sales Promotion; Trade Shows, Role of Relationship Marketing in promoting software	**2 Sessions of 3 Hours**

9	**Distribution:** Place – Distribution Strategies for Software Products / Services; Challenges in distribution of Software Products and Services; Role of Internet in distribution of Software Products and Services. **Pricing:** Factors involved in pricing software Products, Price estimating for Software Projects	**1 Session of 3 Hours**
10	**Customer Satisfaction & Service Quality:** Monitoring and Measuring customer satisfaction. Applying technology to service settings, e-services. Role of People, Process and Physical Evidence in Software Products and Services	**1 Session of 3 Hours**
11	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

Handbook of Software Quality Assurance
Software Quality Assurance: Principles and Practices by Nina Godbole
Software Quality Assurance from theory to implementation – Danial Galin
Software Project management - Edwin Bennatan
Project Management Body of Knowledge – PMI
Engineering Roger S. Pressman, TMH, 7 Edition
Services Marketing - Zeithaml, Bitner, Gremler&Pandit, TMGH, 4 Edition.
Services Marketing – Rampal& Gupta
Software That Sells : A Practical Guide to Developing and Marketing your
Software Project, Edward Hasted

MMS SEMESTER – III
(Core Papers All Specialisations)

International Business - 15 Sessions of 3 Hours 100 Marks Sem III Core (University Assessment)

SL. No.	Particulars	No. of Sessions
01	**Introduction to International Business** a) Objective, Scope, Importance and Current Trends b) Domestic Business v/s International Business c) Reasons For International Business – For Corporates and Country d) Modes of Entry and Operation	**2 Sessions of 3 Hours**
02	**PEST Factors and Impact on International Business** a) Risk Analysis b) Decisions to overcome or managing risks – a live current case	**1 Session of 3 Hours**
03	**Investment Management in International Business** a) Foreign Direct Investment b) Offshore Banking c) Foreign Exchange Dealings and numericals in business d) Resource Mobilization through portfolio/GDR/ADR e) Other options of funding in ventures and case discussions	**1 Session of 3 Hours**
04	**Multinational Corporations** a) Structure, system and operation b) Advantages and Disadvantages – Case discussion c) Current Opportunities of Indian MNCs and Case discussion d) Issues in foreign investments, technology transfer, pricing and regulations; International collaborative arrangements and strategic alliances.	**1 Session of 3 Hours**
05	**Globalization** a) Concept and Practice b) Role of Global Organisation and Global Managers c) Stages of building Global companies and competitiveness d) Global competitive advantages of India - Sectors and Industries – Case study	**2 Sessions of 3 Hours**
06	**International Organisations and their role in international business** a) WTO b) World Bank c) ADB d) IMF and others Case study	**1 Session of 3 Hours**

07	**Regional Trade Agreements and Free Trade Agreements (RTA and FTA)** a) NAFTA b) EC c) ASEAN d) COMESA e) LAC f) Others – Case Study	**1 Session of 3 Hours**
08	**Trade Theories and relevance in International Business** a) Absolute advantage b) Comparative advantage c) Competitive advantages d) Purchasing power points e) PLC theory f) Others – Case study	**1 Session of 3 Hours**
09	**International Logistics and Supply Chain** a) Concepts and Practice b) Components of logistics and impact on trade c) Others – Case Study	**1 Session of 3 Hours**
10	**International HR Strategies** a) Unique Characteristics of Global HR b) HR – Challenges c) Ethical Issues d) Regulator, Aspects of HR e) Others - Case Study	**1 Session of 3 Hours**
11	Emerging Developments and Other Issues: Growing concern for ecology; Counter trade; IT and international business.	**1 Session of 3 Hours**
12	**Case Studies and Presentations**	**2 Sessions of 3 Hours**

Reference Text

1. International Business – Daniels and Radebough
2. International Business – Sundaram and Black
3. International Business – Roebuck and Simon
4. International Business – Charles Hill
5. International Business – Subba Rao
6. International Business – Alan Sitkin & Nick Bowen – Oxford Publications
7. International Business: - Concept, Environment & Strategy – Vyuptakesh Sharan – Pearson Publications

Strategic Management 100 marks (15 Sessions of 3 Hours Each) Sem III Core

SL.No	Particulars	Sessions
1	Introduction to Strategic Management	**1 Session of 3 Hours Each**
2	Strategic Management Process : Vision, Mission, Goal, Philosophy, Policies of an Organisation	**1 Session of 3 Hours Each**
3	Strategy, Strategy as planned action, its importance, Process and advantages of planning Strategic v/s Operational Planning	**1 Session of 3 Hours Each**
4	**Strategy Choices** Hierarchy of Strategies Types of Strategies Porter's Generic Strategies Competitive Strategies and Strategies for different industries and company situations Strategy Development for Non-profit, Non-business oriented organizations Mckinsey's 7 S Model: Strategy, Style, Structure, Systems, Staff, Skills and Shared values.	**2 Sessions of 3 Hours Each**
5	**External and Industry Analysis** General Environment Industry / Competitive Environment Identifying industry's dominant features Porter's Five Forces of Competitive Analysis Analytic Tools: EFE Matrix and CPM	**1 Session of 3 Hours Each**
6	**Internal Analysis** Assessment of Company Performance Management & Business Functions Framework Other Frameworks for Organisational and Internal Analysis Analytical Tool: IFE Matrix	**1 Session of 3 Hours Each**
7	**Strategy Analysis and Formulation Tools** SWOT Matrix SPACE Matrix BCG Matrix IE Matrix GE – McKinsey Matrix Grand Strategy Matrix Strategy Mapping and the Balanced Scorecard	**1 Session of 3 Hours Each**
8	Growth Accelerators: Business Web, Market Power, Learning based. Management Control, Elements, Components of Management Information Systems	**1 Session of 3 Hours Each**

9	**Strategy Evaluation and Control** Performance Measurement and Monitoring	**1 Session of 3 Hours Each**
10	Financial Projections and Financial Impact of Strategies	**1 Session of 3 Hours Each**
11	**Miscellaneous Management Topics** Social Responsibility Environmental Sustainability Value Chain Analysis Economic Value Added (EVA) Market Value Added (MVA) Strategic Issues in a Global Environment	**2 Sessions of 3 Hours Each**
12	Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text

1. Strategic Management – Thompson & Striekland McGraw Hill Irwin
2. Competitive advantage – Michael Porter
3. Competitive strategy – Michael Porter
4. Strategic Management – N Chandrasekaran & P.S Ananthanarayanan – Oxford Publications
5. Understanding Strategic Management - Anthony Henry – Oxford Publications
6. Concepts in Strategic Management & Business Policy – Toward Global Sustainability – Thomas L Wheelen, J David Hunger – Pearson Publications

MMS SEMESTER – III INFORMATION TECHNOLOGY MAJORS

Software Engineering University Assessment 100 Marks 15 Sessions of 3 Hours Sem III Major

SL.No	Particulars	Sessions
1	Exposure to software development process – Software Lifecycles such as Waterfall, Spiral, Prototyping, Rational Unified Process, Agile Methodologies – Various phases in each lifecycle model, and the pros and cons of these approaches to software development	**2 Sessions of 3 Hours**
2	**Analysis and Design of Information systems** • Assessing the Feasibility of a system • Gathering detailed requirement • Use of Structured methods such as Data flow, Entity Relationship diagrams etc – • Use of Object Analysis and Design • Use Cases and visualization of the IT based solution • Design of Inputs , Outputs and other interfaces	**4 Sessions of 3 Hours**
3	Documenting Software requirements - various documents used at different stages of software development process – User Requirement Specifications	**2 Sessions of 3 Hours**
4	Software Estimation – challenges in Estimation of software – methods of software estimation such as Line of Code, Function Point, COCOMO, Use Case Point Method etc – Estimating a Coding Task versus non-coding activities such as Documentation etc	**2 Sessions of 3 Hours**
5	Software Quality and Testing – Need for testing, Quality assurance of software at each phase in the lifecycle, Various types of tests such as Black box v/s White box, Functional test, code reviews , Stress tests, load tests etc Use of Use Cases for functional testing, Preparing Test Data and Test Cases, overview of Automated methods for testing	**2 Sessions of 3 Hours**
6	Review of Student Presentations on exercise which requires them to analyse a business process, document the requirements, Analysis and Conceptual design of the system, estimation of the software size	**1 Session of 3 Hours**
7	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

Systems Analysis and Design by James Senn
Software Engineering by
OOAD – Buch and Rambaugh
UML by Wrox Publication
OOAD & UML by Rambaugh
Software Metrics
Nasscom Reports and Nasscom website for Industry Perspective
Structured systems analysis and design: concise study Ed: 1 : Kelkar SA.

Business Intelligence & Analytics 15 Sessions of 3 Hours 100 Marks Sem III Major

SL.No	Particulars	Sessions
1	**Business Intelligence:** Definition , concept and need for Business Intelligence, Case studies **BI Basics :** Data, information and knowledge, Role of Mathematical models	**2 Sessions of 3 Hours**
2	**Business Analytics at the strategic level:** Strategy and BA , Link between strategy and Business Analytics, BA supporting strategy at functional level, dialogue between strategy and BA functions, information as strategic resource	**2 Sessions of 3 Hours**
3	**Business Analytics at Analytical level :** Statistical data mining, descriptive Statistical methods, lists, reports, automated reports, hypothesis driven methods, data mining with target variables, cluster analysis, Discriminate Analysis, logistic regression, principal component analysis.	**3 Sessions of 3 Hours**
4	Business Analytics at Data Warehouse Level, Designing physical database, Deploying and supporting DW/BI system	**2 Sessions of 3 Hours**
5	**Business Intelligence Architectures:** Cycle of Business Intelligence Analysis, Development of Business Intelligence System, spread sheets, concept of dashboard, OLAP, SOA, decision engineering. **BI Tools:** Concept of dashboard.	**2 Sessions of 3 Hours**
6	BI Applications in different domains- CRM, HR, Production	**2 Sessions of 3 Hours**
7	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text:

Decision Support and Business Intelligence Systems, Turban, Sharda, Delen, Pearson

Business Intelligence Success Factors Tools for aligning your business in the global economy by Olivia Parr Rud, John Wiley and sons , 2009
The Profit impact of Business Intelligence by Steve Williams and Nancy Williams , Morgan Kauffman Publishers/ Elsevier, 2007
Business Intelligence: Practices, Technologies, and Management- Rajiv Sabherwal, Irma Becerra-Fernandez
Business Analytics for Managers : Taking Business Intelligence beyond reporting by GERT H.N. Laursen, Jesper Thorlund, Wiley and SAS Business Series, 2010

Enterprise Resource Planning 15 Sessions of 3 Hours 100 Marks Sem III Major

SL.No	Particulars	Sessions
1	Enterprise Resource Planning What is ERP? - Features of ERP (Basic and Advanced) – ERP Architecture – ERP Need Analysis – Return on Investment for ERP	**2 Sessions of 3 Hours**
2	ERP Implementation and Support ERP Life Cycle, Methodologies and Strategy – Vendor and Software Selection –Business Process Re-engineering related to ERP - Implementation Process – Change Management – Post Implementation Support, Maintenance, Security	**3 Sessions of 3 Hours**
3	ERP Functional Modules Human Resource Management Accounting and Finance Procurement, Inventory Control Production Planning, Operations Sales, Customer Relationship Management e-Commerce	**3 Sessions of 3 Hours**
4	ERP Technology Areas, Enterprise Applications Portal and Content Management, Data Warehousing and Data Mining, Business Intelligence and Analytics - Emerging Trends in ERP Applications	**3 Sessions of 3 Hours**
5	ERP Case Studies Case Studies of ERP Implementation in Manufacturing and Service Sectors	**2 Sessions of 3 Hours**
7	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text:

Enterprise Resource Planning by Koul, Saroj, Galgotia Publishing, 2001.
ERP Concepts and Practice by Garg, V. K. and Venket Krishna N. K., PHI Publication, 1997.
ERP In Practice by Vaman Jagan, TMGH
Enterprise Resource Planning by Sumner, Mary, Pearson Education, 2006.
Enterprise Resource Planning by Jaiswal and Vanapalli, Macmillan Books.

Knowledge Management 15 Sessions of 3 Hours 100 Marks Sem III Major

SL.No	Particulars	Sessions
1	**Introduction to Knowledge** ➢ Meaning of data, information, knowledge and expertise ➢ Meaning of epistemology, Types of Knowledge - Subjective & Objective views of knowledge, procedural Vs. Declarative, tacit Vs. explicit, general Vs. specific. ➢ Types of expertise – associational, motor skill, theoretical Characteristics of knowledge – explicitness, codifiability, teachability, specificity ➢ Reservoirs of knowledge	**2 Sessions of 3 Hours**
2	**Introduction to Knowledge Management (KM)** ➢ Meaning of Knowledge Management, Forces Driving ➢ Organizational issues in KM ➢ KM Systems & their role ➢ Relevance of KM in today's dynamic & complex environment ➢ Future of Knowledge Management	**3 Sessions of 3 Hours**
3	**KM Solutions for capture, sharing & applications** KM Processes, KM Systems, Mechanisms & Technologies	**3 Sessions of 3 Hours**
4	**KM Infrastructure** Organizational Structure Organizational Culture Communities of Practice Information Technology Infrastructure Common Knowledge	**3 Sessions of 3 Hours**
5	**KM Impact** ➢ Dimensions of KM Impact – People, Processes, Products & Organizational Performance ➢ Factors influencing impact – universalistic & contingency views ➢ Assessment of KM Impact – Qualitative & quantitative measures ➢ Identification of appropriate KM solutions	**2 Sessions of 3 Hours**
7	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

Irma Becerra-Fernandez, Avelino Gonzalez, Rajiv Sabherwal (2004). *Knowledge Management Challenges, Solutions, and Technologies* . Prentice Hall. ISBN: 0-13-109931-0.

Elias M. Awad, Hassan M. Ghaziri (2004). Knowledge Management. Prentice Hall. ISBN: 0-13-034820-1.

Donald Hislop, Knowledge Management in Organizations, Oxford 2nd Edition.

Ian Watson (2002). Applying Knowledge Management: Techniques for Building Corporate Memories. Morgan Kaufmann. ISBN: 1558607609.

Madanmohan Rao (2004). Knowledge Management Tools and Techniques: Practitioners and Experts Evaluate KM Solutions. Butterworth-Heinemann. ISBN: 0750678186.

Stuart Barnes (Ed.) (2002). Knowledge Management Systems Theory and Practice. Thomson Learning.

KimizDalkir, Knowledge Management in Theory and Practice, Elsevier, Butterworth-Hinemann.

SheldaDebowski, Knowledge Management, Wiley India Edition.

MMS SEMESTER – III INFORMATION TECHNOLOGY ELECTIVES

Technology Platforms 15 Sessions of 3 Hours 100 Marks Sem III Elective

SL.No	Particulars	Sessions
1	**Hardware Technologies** – Awareness of various platforms in the present context and the broad trends in these platforms – comparisons across platforms etc End User Hardware - Desktop, Laptops, other mobile devices, Storage Technologies: Storage technologies such as Direct Attached storage, Storage Area Networks (NAS), Storage Area Networks (SAN) devices for backup etc Server Technology platforms - popular server technologies such as the Intel, Sun based etc more specialized platforms such as for CRAY etc Networking Platforms : (this could be dealt with in greater detail in the subject of networking - however a mention of this would be necessary for completeness	**4 Sessions of 3 Hours**
2	**Software Platforms –** Operating System Platforms - Windows , Unix, Linux (open source platforms) – overview of OS principles and key differences between the various platforms – impact from buyers perspective Database Platforms – Commonly used data based technologies based on the Relational and object relational concept. Databases for data warehousing and other specialized applications	**4 Sessions of 3 Hours**
3	**Software Development Platforms :** Web Platforms – Various Protocols used for the internet, the internet Protocol, HTTP, email Protocols , FTP, etc Basics of HTML – basic tags required to develop a transaction oriented form – concepts related to dynamic HTML Overview of one or more Scripting Languages such as VB, VBScript/JavaScript, ASP, PHP etc Overview Dot Net and Java platforms – essential differences Overview of Platforms required for e-Commerce applications Overview of platforms and protocols required for mobile computing environments	**4 Sessions of 3 Hours**

4	Future of platforms	**1 Session of 3 Hours**
5	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

1. Godbole A.S. – Operating Systems
2. Steven Holzner – Visual Basic 6 Programming
3. Doanld Leach, Albert Malvino - Digital Principles and Applications Ed:5

Data base Management Systems 15 Sessions of 3 Hours 100 Marks Sem III Elective

SL.No	Particulars	Sessions
1	What is a Database, Need and Objectives of a database and a DBMS	**2 Sessions of 3 Hours**
2	Historical perspective – evolution of DBMS – flat files, hierarchical , network and relational DBMS	**1 Session of 3 Hours**
3	Understanding the Relational DBMS model – entities, tuples etc	**2 Sessions of 3 Hours**
4	Concept of Normalization – 1st , 2nd and 3rd normal forms	**2 Sessions of 3 Hours**
5	Use of E-R model or Object Relation model for Conceptual database Design	**2 Sessions of 3 Hours**
6	Structured Query Language – Writing SQL queries for typical business situations – developing an understanding of complex query situations such as joins , inner and outer joins nested queries and tree structured queries. Operations such as Union etc	**2 Sessions of 3 Hours**
7	Hands on sessions on any DBMS would be required for this module so as to develop an understanding of design issues as well as SQL	**2 Sessions of 3 Hours**
8	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

1. Database Management Systems by C J Date
2. Database Concepts by Korth and Silberscatzh
3. Database Concepts by David Lockman
4. Database Management System by James Martin

Software Testing 15 Sessions of 3 Hours 100 Marks Sem III Elective

SL.No	Particulars	Sessions
1	**Software Testing Principles:** Basic concepts - Need of testing , errors, faults, defects Defects – Process defects, design defects, data defects Reducing the frequency of defects in software development Factors affecting software testing Testing constraints Life cycle testing Tester's workbench	**2 Sessions of 3 Hours**
2	**Levels of Testing:** Verification and Validation Functional and Structural Testing Static and Dynamic Testing V Concept of Testing with Testing Stages	**1 Session of 3 Hours**
3	**Types of Testing:** Unit Testing, Integration Testing, System Testing- Performance, Load, Stress, Volume Testing, Regression Testing, Alpha, Beta and Acceptance Testing , Functional Testing, Performance Testing, Recovery Testing, White Box Testing, Black Box Testing, Gray Box Testing Security testing- Types of Security Testing: Network Scanning, Vulnerability Scanning, Password Cracking, Log Reviews, File Integrity Checkers, Virus Detectors, Penetration Testing Usability Testing Manual versus Automated Testing Static versus Dynamic Testing Compliance Testing	**3 Sessions of 3 Hours**
4	**Test Management:** Testing Life Cycle – Roles and activities, Test Planning – forming a test team, develop test plan reviews, structured walkthroughs Test Cases design strategies	**1 Session of 3 Hours**
5	**Test Execution:** build test data, life cycle of defect, defect tracking, defect detection stages, defect detection stages, defect types, defect severity, defect analysis and prevention.	**2 Sessions of 3 Hours**
6	**Functional Testing(black box):** random testing, equivalence class partitioning and boundary value analysis, Cause effect graphing, Syntax testing	**2 Sessions of 3 Hours**

7	**Structural Testing(white box):** test adequacy criteria, coverage (Branch and decision coverage, path coverage) and control flow graphs, paths, loop testing, mutation testing. Black Box testing versus White Box Testing	**1 Session of 3 Hours**
8	Overview of testing tools including open source tools for software testing	**1 Session of 3 Hours**
9	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text:

Effective Methods for Software Testing, William E Perry, 2nd Edition, Wiley Publication
Practical Software Testing, Iien Burnstein, Springer Publication, 2003
Software Testing and continuous Quality improvement, William E Lewis, CRC Press, 2009
Software Engineering , Pressman, Fifth Edition

Information Systems Audit 15 Sessions of 3 Hours 100 Marks Sem III Elective

SL.No	Particulars	Sessions
1	**Basics:** Concept of Auditing, Differentiation with regard to Internal Checks and Internal Controls, Concepts of posting, vouching, tracing, Emerging trends of Auditing, Role of Auditor in the Organization, Test Checks, Types of Audit, Required Competencies, Sector and Industry Specific prerequisites of Audit, Audit Reports, Types of Audit Reports	**2 Sessions of 3 Hours**
2	**Concept of Systems Audit:** Emerging concept of Systems Audit, Time and Cost effectiveness, Convenience, Competent Authorities involved, Role of Systems Auditor, Internal and External Systems Auditor, Role of ERP in Systems Audit, Prerequisites of Systems Audit	**1 Session of 3 Hours**
3	**System & Infrastructure Maintenance:** Review of the existing information flows in the organization, systems in the organization, inputs, process, validation and output, modifications, authorizations, maintenance process, disposal process, Review of Master Files, checking of authorization codes, Logical access and Physical access, maintenance of the confidentiality of the information, Difference between physical and system records	**2 Sessions of 3 Hours**
4	**Security Administration & Operations' Audit**: Security Threats of the information – Physical and System based, Disaster recovery plans for the information, design and implementation of information validation, role of management in the operations and information security, integrity of information processing, connect of existing internal checks /controls with the information systems	**2 Sessions of 3 Hours**
5	**Global & Indian perspective:** Certifications available in Systems Audit, Institutes/Organizations providing the Certifications, Connect between traditional audit and systems audit, organizations opting for systems audit, demand and supply gap for system auditors, linkage with the accuracy and reduction of scandals, advanced usage of IT in Systems Audit	**2 Sessions of 3 Hours**
8	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

Accounting Information Systems – M.Kartikeyan – Avinash Paperbacks
Principles of Accounting Information Systems by Hall
Analysis and Design of Information Systems – V. Rajaraman – Prentice Hall of India
Auditing - D.G–Prasuna – ICFAI Press
Auditing in a computerized environment – Mohan Bhatia – Tata Mc Graw Hill
Contemporary Auditing – Kamal Gupta – Tata Mc Graw Hill

Summer Internship Project (All Specialisations) 100 Marks

MMS SEMESTER – IV
(Core Papers All Specialisations)

Management Control Systems University Assessment 100 marks (15 Sessions of 3 Hours Each) Sem IV Core

SL.No	Particulars	Sessions
1	**Financial goal setting** - Analysis of Incremental ROI - Sensitivity Analysis - Developing financial goals along organizational hierarchy - Concept and technique of Responsibility Budgeting - Analytical framework for Developing Responsibility Budgets - Integrating Responsibility Budgets Integrating Responsibility Budgeting with MBO System.	**3 Sessions of 3 Hours**
2	**Organizational growth :** -Responsibility centers and profit centers -Identification and creation of profit centers, profit centers as a control system - Decentralization and profit centers.	**2 Sessions of 3 Hours**
3	Mechanics of determining profit objectives of profit centers - problems and perspectives of transfer pricing - Linear - programming technique for determining divisional goals in a multidivisional company - Problems of growth and corporate control.	**3 Sessions of 3 Hours**
4	**Control in special sectors :** Scrap Control - Control of R & D – Project Control - Administrative Cost Control - Audit - Efficiency Audit - Internal Audit -Government Cost Audit - Management Audit. Financial Reporting to Management Under conditions of price level change. Objective and methodology.	**3 Sessions of 3 Hours**
5	**Measurement of Assets Employed** - Application of MCS in Public Sector, Service Organization & Proprietary Organizations.	**2 Sessions of 3 Hours**
6	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

· Anthony & Govindrajan - Management Control Systems (TATA McGraw Hill)
· Maciarirllo & Kirby – Management Control Systems (Prentice Hall India)
· Management Control Systems – N. Ghosh (Prentice Hall India)

Creativity & Innovation Management 100 marks (15 Sessions of 3 Hours Each) Sem IV Core

SL.No	Particulars	Sessions
1	Introduction to Creativity and Innovation Nature of Creativity: Person, Process, Product and Environment Nature of Innovation: Making the Idea a Reality	**2 Sessions of 3 Hours Each**
2	Need for Creativity and Innovation in Organizations Role of Creativity and Innovation in the Organisation Dynamics that underlie Creative Thinking	**3 Sessions of 3 Hours Each**
3	Creative insight: Why do good ideas come to us and when they do? Idea evaluation: What to do with generated ideas? Creativity in Teams	**2 Sessions of 3 Hours Each**
4	Developing and Contributing to a Creative-Innovation Team Managing for Creativity and Innovation Tools and Techniques in Creativity	**2 Sessions of 3 Hours Each**
5	Evolving a Culture of Creativity and Innovation in Organizations Creativity in the Workplace Creativity and Change Leadership	**2 Sessions of 3 Hours Each**
6	Researching/Assessing Creativity Global Perspectives on Creativity	**2 Sessions of 3 Hours Each**
7	Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text

Innovation Management – Allan Afuah – Oxford Publications
Managing & Shaping Innovation – Steve Conway & Fred Steward – Oxford Publications

MMS SEMESTER – IV
INFORMATION TECHNOLOGY
MAJORS

Project Management 100 Marks (15 Sessions of 3 Hours Each) Sem IV Major

SL.No	Particulars	Sessions
1	**Overview of Project Management** **Basics of Project Management:** Concept of Project, Attributes of a Project,Importance of Project Management, Project Management Process, Project Lifecycle, Project Stakeholders, Project Management Structures, Choosing Appropriate Project Management Structure, Implications of Organizational Culture, Main Causes of Project Failure. **Project Definition:** Defining Scope, Establishing Priorities, Creating the Work Breakdown Structure (WBS), integrating the WBS with the organization, Coding the WBS for information system, Project Roll Up, Process Breakdown Structure, Responsibility Matrices.	**1 Session of 3 Hours**
2	Project Identification :– Selection of product identification of market preparation of feasibility study/report Project formulation -–Evaluation of risks preparation of Project report.	**1 Session of 3 Hours**
3	Selection of location & site of the project – Factors affecting location – policies of Central – State Government towards location – Legal aspects of project management.	**1 Session of 3 Hours**
4	**Project Planning** Estimating Project Times and Costs: Factors Influencing Quality of Estimates, Estimation Guidelines for Time, Costs and resources, Macro versus Micro Estimating, Methods for Estimating Project Times and Costs, Level of detail, Developing Budgets, Types of Costs, Refining estimates andcontingency funds. **Developing a Project Plan:** Developing the Project Network, From Work Package to Network, Constructing a Project Network, Activity-on-Node,Fundamentals, Network Computation process, Using the Forward and Backward pass information, Level of Detail for activities, Extended Network techniques.	**1 Session of 3 Hours**
5	**Project Scheduling & Risk Management** Scheduling Resources and Reducing Project Duration: Types of Project Constraints, Classification of Scheduling Problem, Resource Allocation Methods, Splitting, Multitasking, Benefits of scheduling resources, Assigning Project work, Multi Project resource Schedules, Rationale for reducing project duration, Options for accelerating Project Completion, Concept and construction of a Project Cost – Duration Graph, Practical considerations. **Managing Risk:** Risk Management process – Risk Identification, Risk Assessment, Risk Response Development, Contingency Planning, Risk Response Control, Change Control Management.	**2 Sessions of 3 Hours**

6	**Project Organization:** The Project Manager: Role and Responsibilities of the project Manager, Planning, Organizing, Controlling, Skills of the Project Manager – Leadership Abilities, Coaching & mentoring Abilities, Communication Skills, Interpersonal Skills, Ability to Handle Stress, Problem Solving Skills, Time Management Skills, Delegation, Management of Change. **Managing Project Teams:** The five stage team development model, Situational factors affecting team development, Team effectiveness, Conflict in projects, Sources of Conflict, Handling Conflict. Managing Virtual Project teams, Project team pitfalls.	**1 Session of 3 Hours**
7	**Project Evaluation** Progress and Performance Management and Evaluation: Structure of a Project Monitoring Information System, Project Control Process, Monitoring Time Performance, Need for an Integrated Information System, Developing a status report and index to monitor progress, Forecasting final project cost, Other control issues. **Project Audit and Closure:** Project Audit, Project Audit Process, Project Closure, Team, Team member and Project Manager Evaluations.	**2 Sessions of 3 Hours**
8	Financial Analysis :– Profitability Analysis – Social cost Benefit Analysis preparation of Budget and Cash Flows. Materials Management in Project Planning – Procurement – storage – disposal.	**1 Session of 3 Hours**
9	Financing of the Project :- Source of Finance – Cost implications thereof Financial Institutions –Guidelines for funding projects, Risk Analysis – Sensitivity Analysis.	**1 Session of 3 Hours**
10	Quantitative Aspects of projects :- PERT/CPM Network Analysis for monitoring of the project –Other quantitative techniques for monitoring and Control of project	**1 Session of 3 Hours**
11	Computer Applications: - Selection of software packages for application to Project management.	**1 Session of 3 Hours**
12	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

1. PMP - Project Management Professional - “Study Guide” - By Kimi Heldman
2. Project Management - By S. Choudhary
3. Text Book of Project Management - By P Gopalakrishnan, V. E. Ramamoorthy
4. Project Management - By Prasanna Chandra
5. Project Appraisal - By P. K. Mattoo
6. Project Management - By Vasant Desai
7. Project Management & Appraisal – Sitanshu Khatua – Oxford Publications

IT Infrastructure Management 15 Sessions of 3 Hours 100 Marks Sem IV Major

SL.No	Particulars	Sessions
1	The need for IT Infrastructure Management IT Infrastructure Management Overview – ITIL Model	**2 Sessions of 3 Hours**
2	Organizing and managing people Managing System Development	**3 Sessions of 3 Hours**
3	Capacity Planning Availability Management	**3 Sessions of 3 Hours**
4	Change Management Operations Management	**3 Sessions of 3 Hours**
5	Asset and Facilities management Business Continuity Planning	**2 Sessions of 3 Hours**
6	Case Studies and Presentations	**2 Sessions of 3 Hours**

Prescribed Text

Rich Schiesser,|| IT Systems Management||

References

E Turban, E Mclean and James Wetherbe, —Information Technology for Management|| (Chapter 15)
Kenneth C Laudon, Jane P Laudon, —Management Information Systems|| (Parts 2 and 5)
Roger S Pressman, —Software Engineering: A Practitioner‘s Approach||
James A O‘Brien, —Management Information Systems||
Walker Royce, — Software Project Management: A Unified Framework||

MMS SEMESTER – IV
INFORMATION TECHNOLOGY
ELECTIVES

Technology Competition and Strategy 100 Marks (15 Sessions of 3 Hours Each) Sem IV Elective

SL.No	Particulars	Sessions
1	**Technology & Competition:** Competitive Domains, Competitive Consequences of Technological Change – Creation of New Products, Changes in the Value Chain, Changes in the Value Constellation, Competitive Rivalry. Technological Characteristics of Competitive Domains – Technological Opportunity, Appropriability, Resource Requirements, Collateral Assets, Institutional Milieu, Speed. Dynamics of Change in the Competitive Domain – Technology Emergence Phase, Incremental Change Phase. Framework for Analysis of Technology Emergence, Influence of Environmental trends on competition. Technology as critical to Business Outcomes – Technology Strategy and Technology Leadership.	**3 Sessions of 3 Hours**
2	**Technology Intelligence:** Signals of New Technology, What is Technology Intelligence, Importance of Technology Intelligence, Levels of Technology Intelligence, External versus Internal Technology Intelligence. Mapping the Technology Environment – Steps in Mapping, Mapping the Macro-level and Industry Level Environment. Mechanisms for Data Collection – Challenges, Organizational Arrangements and Key Principles for Data Collection	**3 Sessions of 3 Hours**
3	**Business Strategy and Technology Strategy:** Business Strategy , Strategic Analysis and Decision Making using Product Evaluation Matrix, Market-Growth-Market-Share Analysis Matrix, X-Y Coordinating Method, M-by-N Matrix, SWOT Matrix, Formulation of Technology Strategy, Core Competencies, Exploitation of Core Competencies, Integration, Linking Technology & Business Strategies, Creating the Product-Technology-Business Connection. Technology's Interface with – Market, Customers and Suppliers. Customer-Supplier and Product-User relationships.	**2 Sessions of 3 Hours**

4	**Technology Strategy Choice:** Technology – Business Connection, Domains of Technology Choice, Linkages between Technology Choice and Competitive Advantage, Technology Strategy Definition, Role of Chief Technology Officer, Key principles underlying Technology Strategy – Objectives, Drivers, Decision criteria. Technology Strategy Types – Appropriateness of the Technology Strategy Types, Diversified Firms, A Framework for formulating Technology Strategy – Strategic Diagnosis, Formulation of Technology Strategy, Crafting and Implementation Approach, Execution. Technology Strategy – Superior Performance Characteristics. Accountability to Shareholders, Government and Other Stakeholders/ Performance Measurement.	**3 Sessions of 3 Hours**
5	**Technology Strategy – Collaborative Mode:** Collaborative Arrangements – Definitions, Trends, R&D Alliances, Marketing Alliances, Outsourcing Alliances, Collaboration between small and large firms, Strategic and Operational. Reasons for Collaborative Arrangements. Collaborative Arrangements in the domain of Technology Strategy – Appropriation of technology, Deployment of technology in New Products, Deployment of technology in the Value Chain, Marketing of technology. Risks of Collaborative Activity – Intellectual Property. Right Risk, Competitive Risk, Organizational Risk. Cases on R & D. Collaborations, Global Technology Alliances. The form of Collaborative Arrangement.	**2 Sessions of 3 Hours**
6	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text:

Managing Technology and Innovation for Competitive Advantage, V K Narayanan, Pearson Education, 2009 Edition.
Technology Management – Text and International Cases, Norma Harrison and Danny Samson, MGH

Strategic Management of Technology & Innovation, Robert A Burgelman,

Modesto A Maidique, Steven C Wheelwright, MGH International Edition.

Management of Technology – The Key to Competitiveness and Wealth

Technology & Business Strategy – An Introduction, Edited by Prashanta Kumar Banerjea, ICFAI books.

Data Warehousing & Data Mining 15 Sessions of 3 Hours 100 Marks Sem IV Elective

SL.No	Particulars	Sessions
1	Introduction to data mining (DM) Kind of data, DM Functionalities, Classification of DM Systems, Issues in DM. What is Data warehousing (DW)? Multidimensional data model: Data cubes, Stars, snowflakes and fact constellations Defining schemas, concept hierarchies, OLAP	**2 Sessions of 3 Hours**
2	Data Warehouse Architecture Steps for design and construction, Three-tier Data Warehouse architecture, Types of OLAP servers: ROLAP versus MOLAP versus HOLAP	**3 Sessions of 3 Hours**
3	Data Warehouse Implementation: Efficient computation of Data cubes Indexing OLAP Data and efficient processing of OLAP queries Back-end tools and utilities	**3 Sessions of 3 Hours**
4	Data Preprocessing Why to preprocess data?, Data cleaning: Missing Values, Noisy Data, Data Integration and transformation, Data Reduction: Data cube aggregation, Dimensionality reduction. Data Compression, Numerosity Reduction Discretization and Concept Hierarchy Generation	**3 Sessions of 3 Hours**
5	Data Mining Primitives, Languages and System Architectures: Task relevant data, Kind of Knowledge to be mined, DM Query languages: Syntax, Designing GUI, Architectures of DM Systems Concept of Cluster Analysis. Application and trends in Data mining Data Mining for Financial data analysis, Data Mining for retail industry, Data mining for telecommunication industry	**2 Sessions of 3 Hours**
6	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text:

Data Mining Concepts and Techniques, J. Han, M. Kamber, Morgan KaufmannPublishers, 2001.

Data mining: Concepts, Models, Methods and Algorithms, M. Kantardzic, John Wiley & Sons Inc., 2003.
Data Mining: Introductory and Advanced Topics, M. Dunham, Pearson
Data mining: Practical machine learning tools and techniques, H. Witten, E. Frank, 2nd ed., Morgan Kaufmann Publishers, 2005.
Data mining: A tutorial-based primer, R. J. Roiger, M. W. Geatz, Pearson Education, 2003.
UCI Repository of Machine Learning, C. L. Blake, C. J. Merz. 19 July 2002.

Managing Technology Business 15 Sessions of 3 Hours 100 marks Sem IV Elective

SL.No	Particulars	Sessions
1	Overview of the IT/ITES/Telecom and related businesses in India and the world – segments of these industries , growth, forecasts, trends, key players, reasons for their success etc	**2 Sessions of 3 Hours**
2	Study of various business models including onsite/off shoring, e-commerce, e-business, m – commerce and pure play 'e' models.	**2 Sessions of 3 Hours**
3	Challenges for these businesses in the domestic and international markets such as Business Development, Pricing, Set up & Infrastructure Costs, Talent management , Licensing costs & Intellectual property rights, Mergers and Acquisitions , Customer Contract Management and SLAs , managing Innovation , legal issues, Special Incentives and schemes such as the Export Processing Zones etc	**2 Sessions of 3 Hours**
4	Case Studies of successful and unsuccessful technology companies	**1 Session of 3 Hours**
5	Product versus Services All flavors of Services like Call Centers, BPO and KPO, MRO	**2 Sessions of 3 Hours**
6	Recruitment, Back office Systems Marketing and Client Management	**2 Sessions of 3 Hours**
7	Proposal making The Science of Delivery Systems and Delivery management	**2 Sessions of 3 Hours**
8	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

A Guide to PMBok – Project Management Institute
Various Cases on the subject – Prof Pradeep Pendse
Managing IT Infrastructure – TMI

Technology Forecasting 15 Sessions of 3 Hours 100 marks Sem IV Elective

SL.No	Particulars	Sessions
1	**Technology Forecasting Methods – I:** Expert Opinion Methods: Delphi (iterative survey), Focus Groups [panels, workshops], Interviews, Participatory Techniques Trend Analysis: Trend Extrapolation [Growth Curve Fitting], Trend Impact Analysis, Precursor Analysis, Long Wave Analysis Monitoring and Intelligence Methods: Monitoring [environmental scanning, technology watch], Bibliometrics [research profiling; patent analysis, text mining]	**2 Sessions of 3 Hours**
2	**Technology Forecasting Methods – II:** Creativity: Brainstorming [brainwriting; nominal group process (NGP)], Creativity Workshops [future workshops], TRIZ, Vision Generation, Science Fiction Analysis Scenarios: Scenarios [scenarios with consistency checks; scenario management], Scenario-simulation [gaming; interactive scenarios], Field Anomaly Relaxation Method [FAR]	**3 Sessions of 3 Hours**
3	**Technology Forecasting Methods – III:** Statistical Methods: Correlation Analysis, Demographics, Cross Impact Analysis, Risk Analysis. Modeling and Simulation: Agent Modeling, Cross Impact Analysis, Sustainability Analysis [life cycle analysis], Causal Models, Diffusion Modeling, Complex Adaptive System Modeling (CAS) [Chaos], Systems Simulation [System Dynamics, KSIM], Technological Substitution, Scenario-simulation [gaming; interactive scenarios], Economic base modeling [input-output analysis], Technology Assessment.	**3 Sessions of 3 Hours**
4	**Technology Forecasting Methods – IV:** Valuing/Decision/Economics Methods: Relevance Trees [futures wheel], Action [options] Analysis, Cost-benefit analysis, Decision analysis [utility analyses], Economic base modeling [input-output analysis]	**2 Sessions of 3 Hours**
5	**Technology Forecasting Methods – V:** Descriptive and Matrices Methods: Analogies, Backcasting, Checklist for Impact Identification, Innovation System Modeling, Institutional Analysis, Mitigation Analysis, Morphological Analysis, Road mapping [product- technology roadmapping], Social Impact Assessment, Multiple perspectives assessment, Organizational analysis, Requirements Analysis [needs analysis]	**3 Sessions of 3 Hours**
6	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text:

A brief introduction to technology forecasting: concepts and exercises by James Rieser Bright Foster, R. "The S-curve: A New Forecasting Tool." Chapter 4 in *Innovation, The Attacker's Advantage*. New York, NY: Summit Books, Simon and Schuster, 1986, pp. 88-111. ISBN: 9780671622503.
Technological forecasting: a practical approach, Marvin J. Cetron
Business Forecasting, Holton Wilson and Barry Keating, TMGH, New Delhi, 2010 Edition.
Martino, J. P. (1983). *Technological Forecasting for Decision Making*, 2 ed., North-Holland, New York NY.

Bright, J. R. (1972). *A Brief Introduction to Technology Forecasting*, 2nd. ed., The Permaquid Press, Austin TX.
Bright, J. R. and M. E. F. Schoeman (1973). *A Guide to Practical Technological Forecasting*, Prentice Hall Inc., Englewood Cliffs NJ.
Hickman, L. A., ed. (1990). *Technology as a Human Affair*, McGraw-Hill Publishing Company, New York NY.

Industry Oriented Dissertation Project 100 Marks

Scheme of Assessments for Subjects of 100 Marks

- The Semester end Examination will be conducted for 60 Marks.
- Internal Assessments will be conducted for 40 Marks.

The allocation of 40 marks shall be on the following basis: -

a) Periodical class tests held in the given semester (20 Marks)

b) Presentations throughout the semester (10 Marks)

c) Attendance and Active participation in routine class instructional deliveries (05 Marks)

d) Overall Conduct as a responsible student, mannerism and articulation and exhibition of leadership qualities in organizing related academic activities. (05 Marks)

Note: A Student has to separately secure minimum 50% marks (i.e 20 out of 40) in the internal assessments and secure minimum 50% marks (i.e 30 out of 60) in the Semester End Examination in every subject to be declared as Pass.

Question Paper Pattern for Semester End Examination (60 Marks)

There will be Seven Questions in all.

Q1 would be compulsory and would carry 20 Marks

In addition to Q1, there would be six questions. Each question would carry 10 Marks. Each of these Six Questions will have three sub – questions and each sub – question would carry 05 Marks

Students have to attempt any four out of the remaining six Questions and within each question; students have to attempt any two out of three sub – questions.

In all, students have to attempt five questions i.e (Q1+Any Four of the remaining)

Q1 – 20 Marks (Compulsory)

Attempt Any Four out of the Remaining Six Questions

Q2 (a) ---------- (5 Marks)
(b) ---------- (5 Marks)
(c) ---------- (5 Marks)
Any two from (a) or (b) or (c) ---------- (5x2) = 10 Marks

Q3 (a) ---------- (5 Marks)
(b) ---------- (5 Marks)
(c) ---------- (5 Marks)
Any two from (a) or (b) or (c) ---------- (5x2) = 10 Marks

Q4 (a) ---------- (5 Marks)
(b) ---------- (5 Marks)
(c) ---------- (5 Marks)
Any two from (a) or (b) or (c) ---------- (5x2) = 10 Marks

Q5 (a) ---------- (5 Marks)
(b) ---------- (5 Marks)
(c) ---------- (5 Marks)
Any two from (a) or (b) or (c) ---------- (5x2) = 10 Marks

Q6 (a) ---------- (5 Marks)
(b) ---------- (5 Marks)
(c) ---------- (5 Marks)
Any two from (a) or (b) or (c) ---------- (5x2) = 10 Marks

Q7 (a) ---------- (5 Marks)
(b) ---------- (5 Marks)
(c) ---------- (5 Marks)
Any two from (a) or (b) or (c) ---------- (5x2) = 10 Marks

Credit Based Grading System for MMS Semester End Examinations

Credit Point:

- A Credit Point denotes the quantum of effort required to be put in by a student, who takes up a course. In other words, it is an index of number of learning hours prescribed for a certain segment of learning.

Learning Hours

Learning Hours for Subjects of 100 Marks (60+40)

Learning Hours consist of Classroom teaching hours and other complementary learning activities indicated here below

1) **Classroom teaching hours ((15 Sessions X 3 Hours = 45 Hours))**

2) **Other Complementary learning activities (30 Hours)**

The learning activities consist of the following:

- Reading, Introspection, Thoughtful Reflection, Group Discussions, Lectures, Field Work, Workshops, Counseling Sessions, Watching Educational and Informative Videos, Assignments, Live Projects, Case Studies, Presentations, Preparation for Examinations, Participation in academic and extra – curricular activities, inculcation of industry specific skills and training & development sessions.

- The total learning hours would be thus equivalent to **45+30=75 Hours for subjects of 100 Marks**

Credit Point Computation

- One credit is construed as equivalent to 30 learning hours.

Credit completion and Credit accumulation:

- Each module of an academic program has been assigned specific credit points defining successful completion of the course under study.

- Credit completion or Credit acquisition may be considered to take place after the learner has successfully cleared all the evaluation criteria with respect to a single course.

- A learner who successfully completes a 2.5 CP (Credit Point) course is treated to have collected or acquired 2.5 credits. His performance above the minimum prescribed level (viz. grades / marks obtained) has no bearing on the number of credits collected or acquired.

- A learner keeps on accumulating more credits as he completes additional courses.

Introduction of Grading System at the University of Mumbai

A well designed evaluation system that integrates the aforesaid parameters having due attention to their relative importance in the context of the given academic programme.

What is Grading?

- Grading, in the educational context is a method of reporting the result of a learner's performance subsequent to his evaluation. It involves a set of alphabets which are clearly defined and designated and uniformly understood by all the stake holders.

- A properly introduced grading system not only provides for a comparison of the learners' performance but it also indicates the quality of performance with respect to the amount of efforts put in and the amount of knowledge acquired at the end of the course by the learners.

The Seven Point Grading System

- A series of meetings of all the Deans & Controller of Examinations were held to discuss the system of grading to be adopted at the post graduate level. Mumbai University, subsequently in its Academic Council meeting and in its Management Council meeting resolved to adopt and implement the **Seven (07) Point Grading System** from the academic year 2012-13.

The Grade Point and the grade allocation shall be as per the Grade Table given below:

Proposed Grades
for Post Graduate courses

7 Point Scale for POST GRADUATE Courses

Range of Scores	Grade	Grade Point	CGPA range
75 & above	O	7	6.5 - 7
70 - 74.99	A	6	5.5 - 6.49
65 - 69.99	B	5	4.5 - 5.49
60 - 64.99	C	4	3.5 - 4.49
55 - 59.99	D	3	2.5 - 3.49
50 - 54.99	E	2	2 - 2.49
< = 49.99	F (Fail)	1	< 2

Note: - Consider 1 Grade Point is equal to Zero for CG calculations in respect of failed learner/s in the concerned course/s.

Conversion of Marks to Grades and Calculations of GPA (Grade Point Average)

- In the Credit and Grade Point System, the assessment of individual Courses in the concerned examinations will be only on the basis of marks obtained; however these marks shall be converted later into Grades by a mechanism wherein the overall performance of the Learners can be reflected by the overall evaluation in terms of Grades.

- Abbreviations used for gradation needs understanding of each and every parameter involved in grade computation and the evaluation mechanism. The abbreviations and formulas used are as follows:-

Abbreviations and Formula's Used:-

G: Grade
GP: Grade Points
C: Credits
CP: Credit Points
CG: Credits X Grades (Product of credits & Grades)
∑**CG:** Sum of Product of Credits & Grades points
∑**C:** Sum of Credits points

$$\textbf{SGPA} = \frac{\sum \textbf{CG}}{\sum \textbf{C}}$$

SGPA: Semester Grade Point Average shall be calculated for individual semesters. (It is also designated as GPA)

CGPA: Cumulative Grade Point Average shall be calculated for the entire Programme by considering all the semesters taken together.

Special Point to Note:

While calculating the CG the value of Grade Point 1 shall be considered as Zero (0) in case of learners who failed in the concerned course/s obtaining marks below 50.

After calculating the SGPA for an individual semester and the CGPA for entire programme, the value can be matched with the grade as given in the Grade Point table as per the Seven (07) Points Grading System and expressed as a single designated GRADE such as O, A, B, etc….

The SGPA of learners who have failed in one subject or more than one subjects shall not be calculated.

Illustrations of the Calculations: -

Credit Points and Grading Calculations for MMS First Year First Semester

1 Credit = 30 Learning Hours

Result: - Passing in All Courses with more than 50% Marks

Courses In Semesters	No of Learning Hours	Credits Per Course (C)	Marks Obtained (%)	Grade	Grade Points (G)	∑CG = CxG	SGPA = ∑CG/∑C
Perspective Management	60	2.5	55	D	3	7.5	
Business Communication and Management Information Systems	60	2.5	60	C	4	10	
Organisational Behaviour	60	2.5	70	A	6	15	
Financial Accounting	60	2.5	80	O	7	17.5	**85/20=4.25**
Operations Management	60	2.5	50	E	2	5	
Marketing Management	60	2.5	55	D	3	7.5	
Managerial Economics	60	2.5	65	B	5	12.5	
Business Statistics	60	2.5	63	C	4	10	
Total	480	**∑C=20**					
Credit Earned = 20						**∑CG = 85**	**Grade C**
Passes							

Credit Points and Grading Calculations for MMS First Year First Semester

1 Credit = 30 Learning Hours

Result: - Fails in One Course or More than One Courses with Less than 50% Marks

Courses In Semesters	No of Learning Hours	Credits Per Course (C)	Marks Obtained (%)	Grade	Grade Points (G)	∑CG = CxG	SGPA = ∑CG/∑C
Perspective Management	60	2.5	55	D	3	7.5	
Business Communication and Management Information Systems	60	2.5	60	C	4	10	
Organisational Behaviour	60	2.5	70	A	6	15	
Financial Accounting	60	2.5	80	O	7	17.5	--------
Operations Management	**60**	**2.5**	**45**	**F**	**1**	**0**	
Marketing Management	60	2.5	55	D	3	7.5	
Managerial Economics	30	2.5	65	B	5	12.5	
Business Statistics	60	2.5	63	C	4	10	
Total	480	**∑C=20**					
Credit Earned = 18						**∑CG =80**	**Grade F**
Fails							

- **Note: - Consider 1 Grade Point is equal to Zero for CG calculations of failed learner/s in the concerned course/s.**
- **The student has been awarded 1 Grade Point, even though he has failed in the subject of Operations Management, however, 1 Grade Point is equal to Zero for CG calculations of failed learner/s in the concerned course/s.**
- **The SGPA has not been calculated as the student has failed.**

Credit Points and Grading Calculations for MMS First Year Second Semester

1 Credit = 30 Learning Hours

Result: - Passing in All Courses with more than 50% Marks

Courses In Semesters	No of Learning Hours	Credits Per Course (C)	Marks Obtained (%)	Grade	Grade Points (G)	∑CG = CxG	SGPA = ∑CG/∑C
Cost & Management Accounting	60	2.5	55	D	3	7.5	
Financial Management	60	2.5	60	C	4	10	
Operations Research	60	2.5	70	A	6	15	
Human Resources Management	60	2.5	80	O	7	17.5	
Legal Aspects of Business & Taxation	60	2.5	50	E	2	5	**85/20=4.25**
Business Research Methods	60	2.5	55	D	3	7.5	
Specialisation Elective I	60	2.5	65	B	5	12.5	
Specialisation Elective II	60	2.5	63	C	4	10	
Total	480	**∑C=20**					
Credit Earned = 20						**∑CG = 85**	**Grade C**
Passes							

Credit Points and Grading Calculations for MMS First Year Second Semester

1 Credit = 30 Learning Hours

Result: - Fails in One Course or More than One Courses with Less than 50% Marks

Courses In Semesters	No of Learning Hours	Credits Per Course (C)	Marks Obtained (%)	Grade	Grade Points (G)	∑CG = CxG	SGPA = ∑CG/∑C
Cost & Management Accounting	60	2.5	55	D	3	7.5	
Financial Management	60	2.5	60	C	4	10	
Operations Research	60	2.5	70	A	6	15	
Human Resources Management	60	2.5	80	O	7	17.5	
Legal Aspects of Business & Taxation	**60**	**2.5**	**45**	**F**	**1**	**0**	--------
Business Research Methods	60	2.5	55	D	3	7.5	
Specialisation Elective I	30	2.5	65	B	5	12.5	
Specialisation Elective II	60	2.5	63	C	4	10	
Total	480	**∑C=20**					
Credit Earned = 18						**∑CG =80**	**Grade F**
Fails							

- **Note: - Consider 1 Grade Point is equal to Zero for CG calculations of failed learner/s in the concerned course/s.**
- **The student has been awarded 1 Grade Point, even though he has failed in the subject of Legal Aspects of Business & Taxation, however, 1 Grade Point is equal to Zero for CG calculations of failed learner/s in the concerned course/s.**
- **The SGPA has not been calculated as the student has failed.**